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ENVIRONMENTAL MANAGEMENT PLAN

San Francisco Bay Region

WORK PROGRAM

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Association of Bay Area Governments

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Part 1

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INTRODUCTION

This work program for preparing the Environmental Management Plan for the Bay Area is composed of the following sections:

- Introduction: explains why the plan is being prepared; gives a brief history of planning for air, water and solid waste management in the region
- Program Goal and General Assumptions: sets forth the goal and the general assumptions for the work program
- Problems to be Addressed: describes the air quality, water quality, and solid waste problems to be addressed
- Major Products: describes products of the program
- Existing Federal and State Standards: describes the goals in the Federal Water Pollution Control Act Amendments of 1972, the Federal Clean Air Act, and state policy for air and water pollution control and the disposal of solid waste
- Legislative Mandates: describes the mandate to prepare an Environmental Management Plan for the Bay Area
- The Environmental Planning Process: describes the two-year planning process
- Organization for Preparing the Plan: describes the roles of public agencies in preparing and approving the plan
- Role of the Environmental Management Task Force: describes the membership and role of the Task Force
- Tasks and Scheduling: identifies the major tasks in the preparation of the plan, shows how they relate and how they are scheduled
- Summary of Major Activities: describes the general activities in plan preparation
- Task Descriptions: consists of one-page descriptions of the tasks identified in the preceding section
- Other Budget Line Items: explains major budget items not included in the task descriptions
- Budget: summarizes the distribution of funds
- Appendices: consists of a draft resolution of intent from agencies and memorandums of understanding with public agencies participating in the plan

The funds for this program (\$4.3 million) come from the U. S. Environmental Protection Agency. These funds were authorized under the Water Pollution Control Act Amendments of 1972. Section 208 of those amendments provided for the preparation of areawide water quality management plans in urban/industrial areas. EPA has agreed that in this region the plan should also address problems of air quality and solid waste to the extent allowed under the Act. Therefore, an Air Quality Maintenance Plan will be prepared using part of the funds. This plan will comply with the Federal Clean Air Act of 1970.

Therefore, the plan will be the Environmental Management Plan for the region. It will be prepared by ABAG in cooperation with local, regional, state, and federal agencies. It will be the environmental management element of ABAG's Regional Plan, which includes other elements such as housing and transportation.

The study area for the plan is shown on the maps in the pouch inside the back cover. The air quality, water quality, and solid waste problems to be addressed in this program are also shown on these maps and lead to the following conclusions:

- The air quality problem is regional in scope, and its solution is likely to demand both regional and local perspectives.
- Some of the water quality issues, such as the effect of Sacramento River Delta outflow on the Bay, are obviously regional.
- Other water quality problems, such as the effects of surface runoff in receiving waters, tend to be local or subregional in nature.
- Solid waste problems may be dealt with at the county level for a few more years, but longer-term planning demands a regional perspective.

Progress toward solving various environmental problems has been made at different rates. Much has been done, for example, to control pollution from municipal and industrial wastewater treatment plants. Listed below are the major events in the recent past:

- In 1968 the Bay-Delta Water Quality Control Plan was completed by the State Water Resources Control Board. This plan outlined a regional system for treating and disposing of municipal and industrial waste. The plan was developed with little local involvement, and because of local opposition, most of its measures were not adopted.
- Beginning in 1970, under pressure from regulatory agencies, various groups of wastewater dischargers in the Bay Area

joined together to develop subregional water quality management plans. Most of the plans have been completed, and facilities are being designed and constructed. In a few areas, however, planning is just beginning or is still in progress.

- o In 1972 the state legislature created the Bay Area Sewage Services Agency, which was charged with adopting a water quality management plan. Where local agencies are unwilling or unable to carry out the plan, BASSA has been given the authority to plan, design, construct, and operate the necessary facilities and to charge the area served.
- o In 1972 the Federal Water Pollution Control Act Amendments were passed. The act called for basin plans for water quality control, set up a system of permits for all wastewater discharges, authorized grant funds for sewerage facility construction, and, in Section 208, required areawide waste treatment management plans for major urban/industrial complexes. The act specified the minimum levels of treatment required regardless of where wastewaters are discharged. It provided some of the funding and defined the necessary planning for pollution control facilities. Thus, the federal act fulfilled much of the implementation role originally conceived for BASSA. The State Water Resources Control Board allocates sewage treatment facility construction grants only for facilities whose capacity to treat or transport wastes is consistent with low projections of population growth in basins with serious air quality problems; the five southern Bay Area counties constitute such a "critical air basin."
- o In 1975 the San Francisco Bay Basin Plan, authorized by the Water Pollution Control Act Amendments of 1972, was completed. For the most part, it endorsed the findings of the subregional wastewater studies and provided a basis for the granting of federal and state funds for the construction of sewerage facilities. The Basin Plan also identified surface runoff as the remaining significant source of pollution that will increase in importance as municipal and industrial point sources are brought under control.
- o Recently, the EPA has begun to require as a condition for major sewage facilities grants that environmental impact statements include investigations of secondary environmental impacts (such as air quality impacts) and measures to mitigate adverse secondary impacts. The implementation of these measures has not yet been made a condition for receiving grants, but the intention of the EPA actions is clear: EPA would like to use the leverage provided by the construction grant program of the Federal Water Pollution Control Act Amendments to achieve other environmental goals mandated by federal law.

This brief history of measures to abate water pollution caused by municipal and industrial point sources in the region leads to three major conclusions:

- Implementable plans were not developed until planning was done by local agencies--the agencies responsible for implementing the plans.
- Federal and state actions that spell out what should be done and provide grant funds to finance what should be done have been the major factors in implementing water quality control measures.
- Water quality management planning is expanding to include other environmental concerns.

Listed below are the major events of air quality planning in the region:

- In 1955 the state legislature created the Bay Area Air Pollution Control District, which was the first regional agency dealing with air pollution in the nation. The authority of the district is largely limited to nonvehicular sources of air pollution, primarily industrial emissions and burning. Its regulations have substantially reduced pollutant emissions.
- In 1967 the state legislature established the Air Resources Board to deal with the state's air pollution problem. The Air Resources Board has authority over motor vehicle emissions.
- In 1970 the Federal Clean Air Act was passed. Under this act, the states are responsible for developing and submitting state implementation plans to EPA that contain measures to attain and maintain the national ambient air quality standards. The Air Resources Board is responsible for developing California's state implementation plan. The first California state implementation plan, submitted to the EPA in February 1972, was found to be deficient because it did not include adequate control strategies for attaining air quality standards.
- As a result of several court suits, EPA required California to submit a transportation control plan to correct some of the inadequacies of the state implementation plan. Because of the enormity of the task and the short amount of time available, the state defaulted on its responsibility, and EPA was forced to promulgate a transportation control plan in many areas, including the San Francisco Bay Area. This November 1973 plan included gas rationing to achieve air quality standards.

- o The state then exercised its option to prepare a transportation control plan. The California Department of Transportation (Caltrans) was designated to prepare the plan for the state; responsibility for the plan for the San Francisco Bay Area was delegated to the Metropolitan Transportation Commission. Together the Commission and Caltrans completed a plan early in 1975. It was directed at short-term measures that could be implemented by 1977, the date for compliance with national ambient air quality standards.
- o A court order led to an EPA requirement for the identification of air quality maintenance areas--areas that have the potential for long-term air pollution problems. The San Francisco Bay Area was identified as such an area in June 1974 by the Air Resources Board and in September 1975 by the EPA. EPA regulations require the development of an air quality maintenance plan for each air quality maintenance area. This plan will include land use and transportation control measures and programs for enforcement.

Listed below are the significant events in solid waste management in the Bay Area:

- o In 1965 ABAG completed a study of refuse disposal needs. This study discussed regional identification of waste disposal sites, resource recovery, and federal or state funds for resource recovery research and demonstration projects.
- o In 1971 the San Francisco Planning and Urban Renewal Association completed a solid wastes management system report for the Bay Area (now known as the Bay-Delta Project). The report recommended a demonstration project to test the feasibility of separating municipal wastes and transporting the composted organic part to a Sacramento-San Joaquin Delta island for land reclamation and levee stabilization. The ABAG Executive Board endorsed the concept and invited local governments to join in initiating a demonstration project. A grant was obtained from EPA to plan a pilot project, an implementation program, and a financial plan. The project report, the Bay Area Solid Waste Management Implementation Project, was published in December 1973. Because of funding problems, the project has not yet been implemented.
- o In 1972 the Nejedly-Z'Berg-Dills Solid Waste Management and Resource Recovery Act (SB-5) was passed requiring that all counties in the state prepare comprehensive countywide plans for solid waste management.
- o In late 1975, the counties completed the preliminary solid waste management plans. The county plans are essentially limited to disposal of urban wastes within counties. They do not address multi-county resource recovery operations or the full range of wastes that must be considered in a

regional management program such as construction and demolition wastes, hazardous and toxic wastes, wastewater residuals, agricultural and industrial wastes, dredge spoils, and floating debris.

- o Within the next few months, a two-million dollar, three-year study will begin to develop a plan for disposal of municipal sewage sludges.

In summary, the environmental management situation in the Bay Area is as follows:

- o Much planning has been done for water quality management, and many of these plans are being implemented. However, pollution from surface runoff has not received much attention. The Environmental Management Plan will provide the first in-depth regional look at this source of pollution.
- o Air quality planning and control have been difficult because of their effect on the way people live. Decisions must be made on what is required to achieve clean air and on what can reasonably be done. Water quality and solid waste programs should be consistent with what can be done to achieve clean air.
- o Plans for municipal solid waste are being prepared for each county, and a comprehensive study on disposal of municipal sewage sludge will begin soon. Other types of solid waste will be considered in the Environmental Management Plan. All of these plans should be put together to form a regional solid waste plan. As a minimum, the framework for this regional plan should be developed during the next two years.

PROGRAM GOAL AND GENERAL ASSUMPTIONS

The goal of the program is to produce an Environmental Management Plan that has the following characteristics:

- It will lead to the greatest possible improvement in water and air quality and problems caused by solid waste, and will lead to compliance with federal and state standards and objectives at the earliest possible date.
- It will not have social, economic, or environmental effects so unacceptable as to prevent implementation.

Discussed below are general assumptions used in developing the work program.

THE PLAN SHOULD INTEGRATE THE MANAGEMENT OF AIR QUALITY, WATER QUALITY, AND SOLID WASTE.

This assumption implies that management plans for water quality, air quality, and solid waste should be consistent with the same projections of population, land use, and employment. It implies that consideration has been given to the adverse effects that carrying out one management plan have on carrying out another management plan. It also implies that options for management in each area have been assessed with respect to the same social, economic, and environmental criteria, and that selections of the best options have been made based on these assessments.

THE PLAN SHOULD BE INTEGRATED WITH THE ABAG REGIONAL PLAN AND OTHER PUBLIC POLICIES.

This assumption implies that the Environmental Management Plan will be integrated with other programs and policies of the ABAG Regional Plan, and, secondly, a process will be developed for achieving compatibility between the Regional Plan and the plans of other governmental units.

THE PLAN SHOULD EMPHASIZE IMPLEMENTATION.

This assumption implies that potential implementing agencies should be involved in developing the plans as far as the budget and the necessity for integration allow. For this reason, local agencies are being asked to prepare surface runoff management plans. The budgets for the other plans are not large enough to accommodate similar levels of local involvement; for these plans, involvement of potential implementing agencies will be determined on a case-by-case basis.

This assumption also implies that the collection of new data will not be emphasized. The plan will be based in large part on the compilation and analysis of existing data.

FEDERAL AND STATE STANDARDS AND GOALS SHOULD BE THE STARTING POINT FOR PLAN DEVELOPMENT.

The implication of this assumption is that alternative plans should be formulated to meet standards and goals. Some of the existing standards are not specific; for others there is uncertainty about compliance schedules. For example, air quality standards and a timetable for compliance have been established but are now being reconsidered at the federal level. Water quality standards have been established, but they do not cover all aspects of the problem (for example, there are no specific objectives pertaining to surface runoff). In addition, water quality standards need not be applied rigidly if, under certain conditions, the social, economic, or environmental costs are too high. There are legal provisions for modifying some water quality standards after a thorough examination of their potential for attainment.

THE EXISTING GOVERNMENTAL STRUCTURE WILL BE MEASURED FOR ITS ABILITY TO PLAN AND MANAGE THE ENVIRONMENT

This assumption implies that the existing structure will be analyzed to determine if there are adequate resources and an appropriate organization for planning and managing the environment. If the structure is found to be deficient, modifications will be developed as part of the Environmental Management Plan.

ALL WATER QUALITY, AIR QUALITY, AND SOLID WASTE PROBLEMS WILL NOT BE SOLVED BY THE ENVIRONMENTAL MANAGEMENT PLAN

The EPA has emphasized developing a continuing planning process. This assumption implies that the Environmental Management Plan will spell out how the continuing planning process will function. It also implies that the solution of certain problems can, with concurrence of the Environmental Management Task Force and certain state and federal agencies, be deferred for later consideration in the continuing planning process. Such deferment is now planned for the development of institutional-financial mechanisms for the water conservation, reuse, and supply and solid waste management plans.

Another implication of this assumption is that the working relationships among agencies and the public developed during the plan preparation should be used in the continuing planning process.

THE ENVIRONMENTAL MANAGEMENT PLAN WILL BUILD ON EXISTING PLANS.

The implication of this assumption is that existing plans, especially those for municipal (201) facilities and the county solid waste plans, will be accepted as a basis for the development of the Environmental Management Plan. Some plans may be re-examined, but for the most part, they will be accepted as they now stand.

THE PUBLIC MUST NOT ONLY BE GIVEN THE OPPORTUNITY TO REACT TO THE PLAN BUT MUST BE INVOLVED IN ITS FORMULATION.

The implication of this assumption is that citizen involvement must be continuous. It also implies that a comprehensive public participation program, operating at the local and regional levels and supported by a sufficient budget, is required.

THE SOCIAL, ECONOMIC, AND ENVIRONMENTAL COSTS OF THE ALTERNATIVES MUST BE ASSESSED BEFORE THE PLAN IS SELECTED.

The implication of this assumption is that considerable effort should be spent to develop, on a consistent basis, information needed for such assessments. For example, to develop a surface runoff management plan, each county must assess alternatives according to the same criteria and using similar procedures. Therefore, ABAG will formulate guidelines for making the assessments that will be used in developing each management plan.

EMPHASIS SHOULD BE PLACED ON THE MANAGEMENT OF SURFACE RUNOFF.

This assumption implies that a significant amount of the total effort should be spent to address this problem and that the budget should reflect this effort. The budget is sufficient to allow considerable substantive work by agencies in the counties to develop the management plan. This assumption also implies that much of the technical work by ABAG should support the surface runoff management plan.

PROBLEMS TO BE ADDRESSED

The three maps in the pouch at the back of this volume summarize water quality, air quality and solid waste problems. The Environmental Management Plan will be directed at finding solutions to these problems.

The water quality map is based on information from the Water Quality Control Plan for San Francisco Bay Basin prepared by the State Water Resources Control Board. The air quality map is based on information in publications of the California Air Resources Board, the Bay Area Air Pollution Control District, the Metropolitan Transportation Commission, and ABAG. The solid waste map is based on the preliminary solid waste plans of the counties and on studies by the State Department of Health.

The water quality problems in the region are listed below under the management plan or special study in which the problems will be considered. The problems that will not be considered in this study are listed under a category called "other."

SURFACE RUNOFF

- beneficial uses of Lake Merritt restricted due to bacterial contamination
- combined wastewater and stormwater overflows and bypasses restrict beneficial uses
- stormwater drainage adversely affects Lake Merced
- adverse impacts from recreational lagoons in Foster City and Bay Farm Island
- absence of a coordinated regional policy for the practical control of urban and non-urban stormwater runoff to minimize adverse effects on beneficial uses of water bodies
- runoff and dairy wastes in Marin and Sonoma enter Petaluma and Sonoma Rivers and their tributaries*
- runoff from dairy wastes and other nonpoint sources may endanger shellfish harvesting in Tomales Bay*
- runoff from copper slag heaps near Benicia enters Bay waters*

MUNICIPAL WASTEWATER FACILITIES

- adverse effects due to infiltration, inflow, bypassing and overflows related to treatment works during wet weather

* May also be considered under "Nonpoint Sources Other than Runoff".

- o inadequate planning to determine the interrelation of water quality control facilities to future growth patterns and potential service areas
- o assimilative capacity of water bodies (see comment under "Other")

NONPOINT SOURCES

- o insufficient data and impact assessment of nonpoint sources
- o inadequate sanitary facilities at recreation locations to accommodate increased use in the region
- o absence of facilities to accommodate vessel wastes from private, commercial and military water craft
- o insufficient guidance and control measures for location, use, approval, maintenance and alternatives for septic tanks
- o deficiency of regulations for control of erosion that impairs beneficial uses
- o deficiency of regulations for control of construction related activities which impair beneficial uses
- o raw sewage discharged from houseboats into Richardson Bay
- o Almaden, Calero and Guadalupe Reservoirs closed to fishing because of mercury contamination
- o dairy wastes discharged into Petaluma River endanger domestic water supply
- o runoff from septic tanks into Bear Gulch threatens water supply of Menlo Park
- o septic tank runoff on Lake Hennessey watershed threatens water supplies

INDUSTRIAL DISCHARGES

- o uncertainty of method of discharge from Leslie Salt operations
- o lack of a regional policy for future location of water oriented major discrete industrial discharges

WATER CONSERVATION, REUSE AND SUPPLY

- o continued inefficient usage of water supplies resulting from a lack of water conservation and reclamation measures
- o insufficient guidance to protect and upgrade groundwater basins

- deterioration of groundwater supplies in Santa Clara Valley
- regeneration of water softeners in South Bay and Livermore Valley adds significant salts to potentially reclaimable water
- potential deterioration of groundwater supplies in Livermore Valley and Niles Cone due to salinity and organics from wastewater
- planning required to protect coastal streams for possible future water supplies

SOLID WASTE

- lack of a regional management plan for the proper collection, transportation, treatment, reclamation and disposal of hazardous and toxic wastes
- lack of a regional wastewater residuals management program to properly plan for and utilize this resource

SPECIAL STUDIES

- uncertain impact of Delta outflows, including agricultural drainage, on the Bay system and future activities
- potential for increased salinity which could adversely affect fish and wildlife habitats
- inadequate regional policy on dredging and dredge disposal activities
- potential degradation of water bodies due to operational failure of wastewater treatment plants resulting from natural disasters, equipment failures, operational failures, or man-power problems
- sediments high in toxic metals
- significant annual fish kills
- periodic algal blooms and bacterial contamination in Bolinas Lagoon
- shellfish harvesting prohibited due to high levels of bacterial and/or heavy metal contamination

OTHER

- decline in Dungeness crab fishery (this special study has been deleted. Information will be obtained from the State Department of Fish and Game)

- uncertain assimilative capacity and future treatment required for discharge to Petaluma River and Sonoma Creek*
- uncertain assimilative capacity and future treatment required for discharge to lower Napa River*
- uncertain assimilative capacity and future treatment required for discharge to Western Delta*
- assimilative capacity of Suisun Marsh unknown*

*Determination of assimilative capacity of water bodies may be done by the Regional Water Quality Control Board under their own ongoing planning efforts as an outgrowth of the Basin Plan. This determination could also be made under tasks on municipal waste-water facilities with assistance from the Regional Board.

MAJOR PRODUCTS OF THE ENVIRONMENTAL MANAGEMENT PLAN

INTRODUCTION

The purpose of this section is to describe the products of the Environmental Management Plan.

The products can be grouped as follows:

- management plans*
- assessment of the environmental, social and economic impacts of the management plans
- a continuing planning program

The first group of products consists of seven major management plans. Each management plan includes control measures and, for most of the plans, the institutional/financial, legislative, and other actions necessary to implement the control measures. The management plans for solid waste and water conservation, reuse, and supply will not contain components for institutional/financial mechanisms (except for hazardous wastes and reuse measures); those components of the plans will be developed in the continuing planning process. The management plans are:

- surface runoff
- air quality maintenance
- municipal wastewater facilities
- other nonpoint sources
- industrial discharges
- water conservation, reuse and supply
- solid waste (including municipal wastes, hazardous wastes, and wastewater residuals)

The second product is an assessment of the environmental, social and economic impacts of the selected management plans; it is required by law. This final assessment and similar assessments conducted earlier in the two-year planning process will be the basis for the selection of control measures for the management plans.

* Because these plans comprise the Environmental Management Plan (EMP), and because the EMP is an element of the Regional Comprehensive Plan, the management plans will be sub-elements of the Regional Comprehensive Plan.

The functions of the third product, the continuing planning program, will be to:

- o identify environmental issues and methods for dealing with them
- o provide the general public and agencies with information on the environmental management plan and elicit responses to that information
- o provide environmental information, including forecasting, on a routine basis
- o update the Environmental Management Plan
- o inventory agency plans and actions
- o use and refine working relationships among agencies developed during preparation of this plan
- o monitor plan implementation

MANAGEMENT PLANS: SUB-ELEMENTS OF THE REGIONAL ENVIRONMENTAL MANAGEMENT PLAN

For each management plan, a list of the reasons for its preparation is presented. It is not possible at the beginning of this planning effort to anticipate all specific products.* However, each plan will consist of control measures and most plans will include the institutional/financial, legislative, and other actions necessary to implement the control measures. Control measures to be considered will range from large structures to changes in land use practices; they could include street cleaning, industrial wastewater pretreatment, or regulation of automobile use.

Surface Runoff

Reasons for preparing the plan:

- o Control measures for urban runoff are required by Section 208 (b) (2) of the Water Pollution Control Act Amendments of 1972.
- o Most nonpoint pollution results from surface runoff.
- o Pollutant load percentages will increase in the future because of additional urban development and as point source pollution is abated.
- o Surface runoff is a major cause of shell fish contamination.

* More specific product definition is found in the sections on task descriptions.

- Runoff causes high bacterial contamination and restricts use of Lake Merced and Lake Merritt.
- Runoff is a major source of heavy metal loadings to Bay waters in wet weather.
- Surface runoff is probably the major source of litter in the Bay and on its shores and mudflats.
- Runoff from dairy farms enters tributaries in Marin and Sonoma counties and restricts and endangers beneficial uses of water bodies (i.e., water supply, fish spawning areas, and shellfish beds).
- Almaden, Calero, and Guadalupe reservoirs are closed to fishing because of mercury contamination from upstream abandoned mines.
- Runoff from logging operations and other activities affects existing and potential beneficial uses of San Mateo coastal streams.
- Runoff from construction activities sometimes affects beneficial uses of water bodies.
- Runoff from the copper slag heaps near Benicia enters Bay waters.
- Control measures for agriculture, silviculture, and mine-and construction-related activities are required under Section 208 of the Water Pollution Control Act Amendments of 1972.
- "Minimum standards for erosion control, especially related to construction activities" were recommended in the Basin Plan for the Bay Area.

In preparing this plan, runoff problems in both urban and rural areas will be examined. However, greater emphasis will be given to urban runoff since agricultural runoff will also be addressed under the other nonpoint source management plan. Near-term control measures for surface runoff will be evaluated. Such measures as street sweeping, refuse clean-up, and catch-basin cleaning can be effective in reducing pollutants from being washed into the Bay in storm runoff and will probably be recommended throughout the region.

An alternative approach, such as structural control measures to collect and treat urban runoff, could require capital investments for the region as high as 12 billion dollars. The cost effectiveness of such an approach has yet to be demonstrated. Thus, these measures will be investigated only on a reconnaissance level in order to provide a basis for further planning after the impacts of urban runoff are better understood. In addition,

possible changes in the way land is used will be considered. For example, construction on the steeper slopes could be limited, or, to reduce peak runoff, new home developments might be required to provide storage for storm runoff. A more severe measure would be to prohibit development on some land so that the runoff problem would not be aggravated.

Air Quality Maintenance

Reasons for preparing the plan:

- Although significant progress has been made toward controlling sources of air pollutant emissions, federal and state air quality standards are frequently violated.
- Violations of these standards are projected to continue into the foreseeable future, given trends in automobile use, land development, and population growth in the region.
- The Bay Area is an air quality maintenance area for photochemical oxidants, sulfur dioxide, and particulates. Air quality problems in the southern part of the region and in the Livermore Valley are caused in part by emissions generated in other parts of the Bay Area.
- Technological controls for automobiles and industry will not be adequate to maintain acceptable levels of air quality; therefore, land use and transportation controls must be considered for both local and regional implementation.

In preparing the plan, the following courses of action would be considered:

- new car controls: The Federal Motor Vehicle Control Program established limits and time schedules for emissions from new vehicles. To date, EPA has concentrated on light-duty automobiles; however, it has the authority to regulate heavy-duty gasoline trucks, heavy-duty diesel trucks, and motorcycles.
- aircraft controls: EPA has the authority to regulate aircraft emissions. The regulations have focused mainly on particulate emissions and, to a lesser extent, on gaseous pollutants.
- in-use vehicle controls: These controls are directed at reducing emissions from vehicles in use through application of retrofit devices and periodic vehicle inspection. States are responsible for implementing, monitoring, and enforcing these programs.
- existing stationary source controls: These control programs are the primary responsibility of local agencies

(e.g., the Bay Area Air Pollution Control District). Overall guidance is provided by the state, with principal enforcement carried out by local agencies as delineated in the locally adopted "Rules and Regulations".

- transportation controls: A number of programs are involved but there has been no clear identification of responsible implementing or enforcement authority. Measures proposed would reduce private vehicle use and reduce pollution from existing travel.
- land use controls: A number of programs could be involved, but there has been no clear identification of responsible implementing or enforcement authority. Specific programs related to transportation controls are in EPA plans for indirect source review and parking management (both of which have been suspended indefinitely).

Because of the number of agencies authorized to implement air pollution controls, staff assigned to the preparation of the air quality maintenance plan will work closely with federal, state, regional and local agencies. In certain cases, formal arrangement will be made for joint staff participation on selected work program activities.

Municipal Wastewater Facilities*

Reasons for preparing the plan:

- Section 208 of the Water Pollution Control Act Amendments of 1972 requires the preparation of a plan and the designation of an agency to carry it out and states that neither discharge permits nor grants will be given agencies for facilities not in conformance with the plan.
- Municipal point sources controls have not been implemented for much of the Bay Area, although much progress has been made.
- Questions concerning the relationship of 201 facilities to secondary environmental effects (air quality and land use) have been raised and must be addressed in the preparation of this Environmental Management Plan.

A description of municipal waste treatment system needs over at least a 20-year period will be included in this plan. Waste load reductions needed to attain and maintain standards and results of preliminary and completed planning pursuant to Section 201 of the Water Pollution Control Act Amendments of 1972 will also be included.

* Planning and construction of these facilities are mandated under Section 201 of the Water Pollution Control Act Amendments of 1972.

This plan will be based on existing 201 plans and should not delay ongoing 201 projects.

Other Nonpoint Sources

Reasons for preparing the plan:

- Despite many years of concern and effort, houseboat problems in the region are still unsolved; raw sewage is discharged from houseboats into Richardson Bay and other areas.
- In general, there are no facilities for disposing of waste from pleasure craft and commercial vessels in compliance with existing regulations. This leads to localized impacts.
- Sanitary facilities in recreational areas are inadequate to accommodate increased use.
- Failing septic tank systems have caused water quality and public health problems. For example, septic tank effluents into Bear Gulch and Lake Hennessey watershed threaten water supplies.
- Continued use or replacement of septic tank systems will affect growth patterns in suburban and rural areas (e.g., Santa Clara and Alameda Counties).

Early in the planning process, each nonpoint source will be examined. For those sources deemed important, a management plan as well as a process will be developed. (It should be noted that some nonpoint sources such as agricultural runoff and construction erosion will also be examined under the surface runoff management plan even though the primary emphasis of that plan is on urban runoff.)

Recommendations of this plan could include:

- vessel holding tanks and on-shore facilities to empty and dispose of wastes
- regional policies on septic tank construction and maintenance
- regulations requiring municipal sewerage facilities to be capable of treating trucked-in waste from recreational areas
- regional policies on control of construction erosion

Industrial Discharges

Reasons for preparing the plan:

- A facilities program is required by Section 208 of the Water Pollution Control Act Amendments of 1972.

- Industrial discharges may be situated in critical water quality locations.
- Major industries are situated along major fish migration and spawning routes, where annual fish kills occur.
- Disposal of brine from the Leslie Salt Company is likely to cause water quality problems.
- Industrial wastewater pretreatment requirements could affect industrial operations and will result in more hazardous solid waste for disposal.

In preparing this plan, data on locations of industries and projections of quality and quantity of liquid and solid waste from discrete and nondiscrete industrial discharges will be compiled. For industries that discharge sewage directly to waters of the region (discrete discharges), the limits on discharges will be checked to determine whether water quality is being protected. Possible sites for new industrial development will be identified, and new limits for each site will be recommended. For industries that discharge sewage to municipal sewerage systems (nondiscrete discharges), current limits ("pretreatment" requirements) will be analyzed according to classes of industries and location (canneries in the South Bay, for example). The effect of limits on municipal sewerage works will be determined, and changes will be recommended. Efforts to limit industrial discharges will undoubtedly cause an increase in hazardous solid wastes because the sewage treatment works installed by industries convert water-borne pollutants to solid waste. The effect of this conversion will be considered in the planning process.

Water Conservation, Reuse, and Supply

Reasons for preparing the plan:

- Water conservation should be considered as a means of reducing the amount of wastewater in the region.
- Water conservation programs instituted by some water agencies are changing projected demands.
- The State Department of Health is developing criteria for wastewater reclamation and reuse for groundwater recharge; these criteria could make reuse more favorable in some areas than was thought when the Basin Plan was prepared.
- Changes in conservation and reuse could increase the need for regional or subregional cooperation for water supply.

Various water conservation programs will be considered to save water and to reduce sewage flows. Possibilities include:

- o requirements for low-water-use household facilities
- o water pricing and water metering in unmetered areas
- o restrictions on types of home use (for example, lawn watering, car washing)
- o requirements for industrial, in-plant recycling

Wastewater reclamation and reuse will be considered as a logical extension of improving municipal treatment works. Special attention will be given to industrial cooling and agricultural irrigation as uses for reused water. Recommendations could include:

- o reuse requirements for new "wet" industries
- o reuse programs for existing industries
- o programs leading to agricultural reuse both in and out of this region.

Solid Waste

The solid waste management plan will include three interim plans: municipal waste, hazardous waste, and wastewater residuals. Even though hazardous waste and wastewater residuals only constitute a relatively small part of the solid waste stream, they can cause significant environmental problems. Therefore, separate interim plans will be prepared for both types of wastes.

Municipal Waste. Reasons for preparing the plan:

- o About 10 million tons of municipal, industrial, and agricultural wastes were disposed of in the nine Bay Area counties in 1975.
- o Past and present solid waste disposal sites in close proximity to the Bay-Delta ground and surface waters have impaired water quality.
- o Because most of the existing disposal sites will be filled completely in less than ten years, new disposal sites or disposal methods will have to be developed in the near future.
- o There are no regional solid waste management programs for the various types of wastes, including hazardous and residual wastes.
- o Alternative regional solid waste management systems and their environmental, social, and economic impacts have not been fully evaluated.

- Solid waste management is related to other nonpoint source control measures such as those for agricultural wastes and street sweeping.
- The goal of the Bay Area Solid Waste Management Study conducted by the State Solid Waste Management Board is to evaluate alternative regional management systems and their environmental, economic, and social impacts. However, the study has only eight months to tackle complex technical, governmental and public issues. The stated goal may not be met. Therefore, the output of the study should be reviewed in relation to the desired output of the 208 plan.
- Section 208 requires processes to control the disposal of all residual waste generated in areas where ground and surface water quality could be affected and of pollutants on land or in subsurface excavations in these areas.

Hazardous Waste. Reasons for preparing the plan:

- The focus of the Group I Wastes Study being conducted by the State Solid Waste Management Board is on Group I wastes and Class I sites. Other Class II hazardous wastes that could have health or environmental impacts will not be considered.
- Existing Class I (hazardous waste) disposal sites may be affecting the quality of groundwaters or the Bay.
- The capacity of existing Class I sites will be exceeded within the planning horizon of this study. Other suitable sites are scarce.
- The amount of hazardous waste generated could increase significantly because of, for instance, the installation of wastewater pretreatment facilities by industries that discharge waste to sewer systems.

Wastewater Residuals. Reasons for preparing the plan:

- It is estimated in the Basin Plan that by 1985, 944 tons/day of raw sludge will be generated in the region.
- Planning for sewage sludge management has been directed toward short-range, uncoordinated solutions that may not be cost effective.
- The regional municipal wastewater solids management study* has the resources to develop a regional residual management plan. The 208 planning process should complement this effort.

*This study will begin in mid-1976 and will last for three years. The budget is approximately three million dollars. The study is a joint effort of East Bay Municipal Utilities District, San Francisco, San Jose, Central Contra Costa Sanitary District, and the Bay Area Sewage Services Agency.

- o Section 208 of the Water Pollution Control Act Amendments of 1972 requires that a process be developed to control the disposal of all residual waste that could affect water quality.

According to state policy, the primary responsibility for solid waste management rests with local governments. Consequently, management plans have been developed by the nine Bay Area counties. These plans have identified issues to be addressed at the regional level: the evaluation of alternative, large-scale resource recovery systems; availability of Class I sites for disposal of dangerous wastes in the region; and the management of wastewater treatment residuals. Some of these issues are being examined in the Bay Area Solid Waste Management Study and the Class I site study of the State Solid Waste Management Board and the Regional Municipal Wastewater Solids Management Study (East Bay Municipal Utilities District as lead agency).

During the two-year planning period, planning needs not covered in the other studies will be identified. The focus of the planning effort will be on these needs and on coordination among the county solid waste management plans.

Programs to promote source reduction and recycling of wastes will be recommended. Control measures for insuring that existing landfill sites meet state standards will be developed. Potential Class I disposal sites will be identified, and a method for establishing suitability will be developed.

Larger issues, such as multi-jurisdictional financing of resource recovery facilities or the acquisition of Class I sites will be considered in the continuing planning process.

ASSESSMENT OF THE ENVIRONMENTAL, SOCIAL, AND ECONOMIC IMPACTS OF CARRYING OUT THE MANAGEMENT PLANS

An assessment of the impacts of carrying out the management plans is required by Section 208 of the Water Pollution Control Act Amendments of 1972 for wastewater treatment and collection and urban storm runoff systems. It will be consistent with state and federal laws and regulations and will be the same as assessments made during the two-year planning period (on which the evaluation of the alternative control measures will be based, except it will be more detailed). The assessment will include the following tasks:

- o establishing evaluation criteria: Criteria will be derived in part from the public participation program.
- o developing assessment methods: Techniques to measure impacts will be defined.
- o measuring impacts of various control measures: Predictive techniques that convert control measures into identifiable

impacts will be developed, and the impacts identified will be given public review.

- o evaluating impacts
- o producing interim outputs

The final assessment will determine the impacts of the control measures from all management plans and will be the impact assessment for the plan.

CONTINUING PLANNING PROGRAM

The continuing planning program will be developed as the Environmental Management Plan is being prepared and will be put into operation at the end of the planning period. It will use the knowledge gained during the planning process and therefore its preparation is considered a "dress rehearsal" for the continuing planning process, which will be carried out after the two-year planning period ends. Thus, near the end of the planning process, the information developed will be analyzed and structured in a section of the final plan document(s) that will describe in detail the continuing planning process and the rationale for its development.

The functions of the continuing planning process will probably include, but not be limited to:

- o identifying new environmental planning issues and the agency and actions (including formation of joint or new agencies, and changes in agency authority and funding) needed to deal with those issues
- o providing routinely the kind of information relevant to environmental management that was developed during the preparation of the plan, including:
 - regional assessments of the social, environmental, and economic effects of new control measures and other actions, described in terms that permit application of assessment techniques
 - predictions of land use, employment, and population to serve as a basis for planning
- o undertaking additional special studies pertaining to environmental management
- o updating and possibly expanding the plan on a regular basis
- o monitoring the implementation of the plan and any updates
- o inventorying agency plans and actions that have significant environmental effects

- o using and refining the working relationships among agencies to solve environmental problems
- o developing a citizen participation process for environmental management to inform the public about problems and progress and to receive input from the public on issues and actions to be taken
- o maintaining a readily accessible, up-to-date system for managing environmental data, especially air and water quality data.

PRIORITIES FOR THE PROGRAM

Priorities are indicated by the amount budgeted for groups of tasks. For example, surface runoff has a higher priority than municipal wastewater facilities.

Priorities are not set for specific products for the following reasons:

- o All products required by federal or state agencies will be produced
- o Additional specific products will be identified as planning proceeds; the intention is to produce management plans which are as specific as is appropriate, given the technical and other bases for the recommendations. If, at the end of two years, more detailed planning is required prior to implementation of any aspect of a management plan, this planning will be described in the continuing planning process.
- o No management plan will be omitted, but some plans will be less detailed than others. The level of detail will depend on the budget for the plan, the level of detail of existing data and plans, and the unforeseen problems that could arise during the two years.

EXISTING FEDERAL AND STATE STANDARDS

The goals cited in the Federal Water Pollution Control Act and the Clean Air Act provide general guidance for developing plans to protect the environment. The standards promulgated under the two acts also form a detailed basis for plan preparation. Under the Clean Air Act, national ambient air quality standards are a measure of the concentration of pollutants in the air. Water quality standards, called water quality objectives by the State Water Resources Control Board, are set by determining beneficial uses for each body of water. Standards are directly related to the goal of swimmable and fishable waters.

WATER QUALITY STANDARDS

Water quality standards in California are set to protect the beneficial uses of water. These are:

- o municipal, industrial, and agricultural uses
- o fish and wildlife propagation
- o recreation
- o navigation

Each of these uses except navigation has subcategories, resulting in a total of 21 beneficial uses. Different bodies of water have different beneficial uses. There are over one hundred different bodies of water in the Bay Area, most of which are fresh water streams and reservoirs. The others are the various zones of the San Francisco Bay (for example, the South Bay, south of San Mateo Bridge) the ocean, and the groundwater basins.

Water quality standards fall into two categories, numerical and narrative. An example of a numerical standard is that for dissolved oxygen: For all tidal waters in the Bay downstream of Carquinez Bridge, the minimum dissolved oxygen concentration is 5 milligrams per liter (mg/l). An example of a narrative standard is that for biostimulation (algae growth): "All waters shall be maintained such that the level of biotic growth does not cause nuisance or adverse effects on any protected beneficial water use as a result of man's activity. Whenever natural factors cause such biotic growths, then controllable factors shall not cause further increase.

A ten-page list of all standards for the region is set forth in the Basin Plan of the State Water Resources Control Board. Two other types of requirements, closely associated with standards have also been adopted: discharge prohibitions and a nondegradation policy. Discharge prohibitions are what the phrase implies.

For instance, there is a prohibition on the discharge of certain kinds of wastewater at any point where the wastewater will not receive a minimum initial dilution of at least ten to one. The nondegradation policy states that, regardless of the standards, the quality of waters shall not be lowered below existing quality, unless such a change is consistent with maximum benefit to the people of the State and will not unreasonably affect beneficial uses.

At present, water quality standards, discharge prohibitions, and the nondegradation policy do not directly address surface runoff. The allowable frequency of water pollution in the Bay caused by storm runoff has not been determined. However, the State Water Resources Control Board and EPA recommend that before setting standards consideration should be given to controlling storm runoff.

AIR QUALITY STANDARDS

The Clean Air Act contains a more direct approach for establishing air quality standards for the protection of public health and welfare. In early 1971, ambient air quality standards were set for six pollutants: suspended particulate matter, sulfur dioxide (SO_2), carbon monoxide (CO), hydrocarbons (HC), nitrogen dioxide (NO_2), and photochemical oxidants (Ox). The standards are either primary or secondary: primary air quality standards are designed to protect public health; secondary standards are to protect public welfare (aesthetic impairment or property damage). These air quality standards were based on previously published federal air quality criteria that summarize the results of medical research on the effects of pollutant levels and exposures. As the standards were formulated, margins of safety were developed to insure protection of public health. To take into account variable meteorological conditions, the standards were not to be violated more than one time each year. Because of the different effects of the pollutants, time intervals were set for each pollutant level considered. Thus, a typical standard would be: "0.08 parts per million (ppm) for 1-hour average, not to be exceeded more than once per year."

A nondegradation policy similar to the one noted above has been proposed by EPA. The 1970 Clean Air Act requires the primary air quality standards to be achieved by 1977. Revisions to the act now under consideration by the U. S. Congress would allow for a more flexible schedule for complying with air quality standards.

Because the California standards set by the Air Resources Board are management objectives (as opposed to standards to be achieved and maintained) the federal standards will be of major concern in the air quality maintenance plan. It should be noted that the federal and state standards are quite similar.

SOLID WASTE

The solid waste planning mandate is less direct than the mandate for air and water quality planning. According to the state policy, the primary responsibility for solid waste management rests with local governments. State policy outlines the minimum standards for solid waste handling and disposal and requires the preparation of county-wide solid waste management plans. These county-wide plans must contain the necessary intergovernmental and public/private arrangements for administration, financing, enforcement, operations, and continuing planning. The county-wide plans do not examine regional solid waste issues, which will, therefore, be included in the Environmental Management Plan.

LEGISLATIVE MANDATES

The mandate to prepare an Environmental Management Plan for the Bay Area is derived from three sources: federal water and air quality legislation, federal and state policies developed under this legislation, and federal and state solid waste planning legislation.

WATER QUALITY

The Federal Water Pollution Control Act Amendments of 1972 state:

The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this Act--

- 1) it is the national goal that the discharge of pollutants into the navigable water be eliminated by 1985;
- 2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;
- 3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;
- 4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;
- 5) it is the national policy that areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State .

The key goal is that swimmable and fishable waters be achieved wherever possible by 1983. The provisions of section 208 of the act that pertain to water quality in the Bay Area are discussed below.

Section 208 of the act allows the Governor to designate agencies to prepare and implement areawide waste treatment management plans for a designated area. Within two years after the planning process is initiated, the designated agency--in this case ABAG-- is to prepare a plan that must be certified by the State Water Resources Control Board and subsequently approved by EPA. This plan is to include, but not be limited to, control measures for improving water quality and the institutional and financial mechanisms necessary to implement control measures for the following sources of water pollution:

- o municipal wastewater
- o industrial wastewater

- o storm runoff
- o other nonpoint sources

The agency is also to assess the social, environmental, and economic impacts of carrying out the plan. The Governor, in consultation with ABAG, will designate a management agency or agencies to implement the approved plan. No federal grants for water pollution control facilities will be made to any agency not so designated, and no permit for this discharge of liquid wastes will be issued unless the discharge is consistent with the plan. The act requires permits for all discharges to navigable waters.

AIR QUALITY

The Clean Air Act of 1970 (P.L. 91-604) describes the air quality problem:

the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation.

The goal of the act is to protect public health from air pollution resulting from the population growth in metropolitan areas. Plans prepared under the act may include land use and transportation controls.

The act requires the preparation of state implementation plans describing how air quality standards are to be achieved and maintained. A timetable and process for establishing these air quality standards, discussed later in this paper, are to be included.

The California Air Resources Board, assisted by the air pollution control districts in each air quality basin, has prepared the state implementation plan for California. For regions with difficult air pollution problems, such as the San Francisco Bay Area, additional plans were required. The transportation control plan, which became a revision of the state implementation plan, identified short-term control measures for achieving air quality standards, including restrictions on the use of the automobile. Few of these transportation-related measures have been implemented. The Air Quality Maintenance Plan is to develop long-term control strategies for attaining and maintaining air quality standards. When adopted by the California Air Resources Board and approved by EPA, the air quality maintenance plan will constitute a revision of the state implementation plan and will guide air quality decisions in the Bay Area.

SOLID WASTE

Under the Federal Water Pollution Control Act Amendments of 1972, residual waste control and land disposal needs must be addressed in water quality management planning. In the regulations, residual wastes are defined as the "solid, liquid or sludge substances from man's activities in the urban, agricultural, mining and industrial environment remaining after collection and necessary treatment."

Waste management planning includes:

- identifying controls to be established for the disposition of residual wastes that could affect water quality and describing actions to achieve such controls
- identifying the controls for the disposal of pollutants on land or in subsurface excavations to protect ground and surface water quality and describing the actions to achieve such controls

According to state policy, the primary responsibility for solid waste management rests with local governments.

County-wide plans for the management of all wastes generated and disposed of within the county or exported have been completed by the nine Bay Area counties in keeping with the guidelines established by the State Solid Waste Management Board.

The Environmental Management Plan will provide for coordination among individual plans and will address solid waste management issues that county plans identify as requiring a regional approach (for example, the evaluation of alternative, large-scale resource recovery systems, the availability of Class I sites for disposing of dangerous wastes, and the management of wastewater treatment residuals). Related state and regional studies, such as the Bay Area Solid Waste Management Project, the Class I Site Study (State Solid Waste Management Board), and the Regional Municipal Wastewater Solids Management Study (EBMUD as lead agency) will be incorporated as applicable.

THE ENVIRONMENTAL PLANNING PROCESS

This section describes, in general terms, the two-year planning process. The description in specific terms is composed of the task descriptions and the task flow and schedule chart, which is in the pouch inside the back cover.

This section consists of two parts:

- o A description of each group of tasks
- o A description of the four phases of the overall process and how the groups of tasks are related in each phase.

For the explanation of work to be done in groups of tasks, reference should be made to the foldout in this section. The right side of the foldout shows how the groups of tasks fit together. The management plans will be developed first. There will be fourteen management plans (one for surface runoff management for each county except San Francisco* and six other management plans that will be developed at the regional level). These plans will be integrated into the regional Environmental Management Plan.

The regional perspective for the development of the surface runoff management plans is not confined to the integration of the plans. The regional supporting services will develop specifications for all management plans to insure that the plans are based on regionally consistent projections, that they consider a wide spectrum of alternatives (structural and nonstructural, including changes in land use practices), and that they assess these alternatives in a consistent manner.

DESCRIPTIONS OF TASK GROUPS

Management Plans

The management plans will consist of control measures and the institutional/financial mechanisms necessary to implement the control measures. All of the management plans, whether developed by local agencies or at the regional level will be developed in accordance with the guidelines set forth by ABAG. All of the management plans will be based on the same projections of population, land use, employment, and transportation. Assessment of alternatives will be consistent for all counties and for all management plans and will be based on assessment procedures developed by ABAG. The plans will be integrated into a regional environmental management plan during months 14 to 19 of the two-year planning period.

*Because San Francisco has "combined" sewers (that carry both sewage and storm runoff), the city has had to develop a surface runoff management plan to solve its sewage disposal problem.

Surface Runoff Management Plan. This management plan is concerned with pollution caused by storm runoff from urban and rural areas. These plans will be prepared on a county-by-county basis by agencies in the county using funds provided by ABAG. Each of the nine Bay Area counties will prepare a surface runoff management plan, with the exception of San Francisco, which has already developed such a plan. The plans will emphasize near-term, nonstructural control measures to solve existing problems. The types of control measures to be considered range from land use controls to large structures for the storage and subsequent treatment of runoff (the latter will be considered only at the reconnaissance level.). Street cleaning, refuse cleanup, and other housekeeping control measures will also be considered.

Air Quality Maintenance Plan. This plan will develop a time-phased solution to the air quality problems of the Bay Area. It will consider pollution from all sources -- stationary, mobile, and area sources. The plan will be developed by a joint technical staff led by ABAG, with support from the Bay Area Air Pollution Control District, the Metropolitan Transportation Commission, and the State Air Resources Board. The plan will consider such control measures as the direct reduction of pollutant emissions from stationary and mobile sources through technological controls, as well as land use and transportation control strategies.

Municipal Wastewater Facilities. Most of the planning for these facilities is well underway. This management plan will build on existing planning and will be coordinated with current planning. Existing plans will be collected and examined from a regional perspective. This plan will be prepared by ABAG. For those local programs that have received concept approval for federal and state grants by a certain date, ABAG involvement will consist simply of its normal review and comment of environmental impact reports or statements on the projects. The types of control measures to be considered will include the conventional ones of wastewater conveyance, treatment, and disposal facilities, and may, in some cases, also involve more fundamental controls related to land use and development.

Other Nonpoint Sources. This management plan will consider nonpoint sources such as vessel waste, septic tanks, and wastes from recreation areas. It will be developed by ABAG with involvement of the agencies especially concerned with the various types of nonpoint source pollution. This management plan will begin with an assessment of the regional significance of various types of nonpoint source pollution. Only those types found to be significant will be addressed in detail in this management plan.

Industrial Discharges. This management plan will be prepared by ABAG with involvement of industrial organizations in the region. Two types of industrial discharges will be considered: those discharged to municipal sewerage systems and those discharged directly to Bay or ocean waters. This management plan will develop limits of pollutant discharge for both types of industries rather than facility plans. The plan will consider effluent limits set on the classes of industries by federal requirement; it will also consider the increase in hazardous solid waste, which could result from implementation of pretreatment requirements for industrial dischargers to municipal sewerage systems.

Water Conservation, Reuse, And Supply. This management plan will be prepared by a consultant to ABAG. The plan will consider water conservation primarily as a means of reducing wastewater flows. It will consider reclamation and reuse as a logical extension of increased degrees of treatment required to solve water pollution problems. Regional water supply will be considered as the logical extension of conservation measures and of reuse. This plan will build on water conservation programs already being implemented by water agencies in the region. It will consider reuse for industrial water supply, groundwater recharge, and irrigation, both within and outside of the region.

Solid Waste. The solid waste management plan will be developed by ABAG and will consist of three parts. The municipal waste part will consider what is commonly known as garbage or refuse, which constitutes most of the solid waste. This plan will build on the county solid waste plans now being completed and will integrate the results of current state solid waste studies. The wastewater residuals part of the plan will be developed by other agencies carrying out a comprehensive regional process to develop a plan for collection, treatment, and disposal of wastewater residuals. The hazardous waste part of the plan will build on recently completed studies of hazardous waste disposal sites. The solid waste management plan will consider regional resource recovery and recycling systems as well as land disposal.

Regional Supporting Services and Data Base

These groups of tasks will be carried out at the regional level to develop background information for the management plans and to assist in the development of the management plans.

Regional Supporting Services. This group of tasks consists of the development of population, land use, and employment projections that will serve as the basis for all of the management plans. It consists of the development and use of various analytical procedures, including mathematical models, which will be operated by ABAG in support of the management plans. It also consists of the regional analysis of institutions and their financial capability. Assistance will be provided to the management plans in developing institutional and financial mechanisms. Those mechanisms will be analyzed to see if they are adequate. If additional local or regional mechanisms are found to be necessary, this group of tasks will develop these additional mechanisms. This group of tasks also includes the development of assessment procedures, provision of some of these procedures to the management plan, and the use of the remainder of the procedures to carry out assessments at the regional level. The assessment group of tasks will develop the candidate control measures to be considered in the development of management plans and the criteria against which these control measures will be measured.

Data Base. This group of tasks includes the collection and analysis of water quality data by county agencies. It includes the collection of existing environmental data by ABAG and the incorporation of these data into an environmental data management system, which will support the preparation of the environmental management plan and will be a key part of the continuing planning process. It also includes collection of local development policies by ABAG with assistance of local agencies. These policies will be the basis of population, land use, and employment projections.

Plan Integration and Administration

This group of tasks, performed by ABAG, involves the management and administration of the planning process, including contractual arrangements, budgets, modifications of the work plan, and preparations for meetings, especially those of the Environmental Management Task Force and Program Review Board. (see section on plan organization). Also included are the preparation of reports, mailouts, visual aids, etc., and the organization and coordination of the fourteen management plans (eight county plans for surface runoff, plus the other six regionally developed management plans). After the management plans have been developed, they will be integrated into a regional environmental management plan or plan alternatives. Those agencies, consultants, or ABAG staff which prepared the individual plans will be heavily involved in their integration. This group of tasks will also produce a draft environmental management plan to be the subject of the hearing and adoption process, and will collect recommendations

from the management plans and from other studies concerning the continuing planning process. Based on this collection of recommendations and on separate analyses the continuing planning process will be developed and described.

Public Participation

This will be a cooperative program of ABAG and local agencies. The phases of public participation are identified on the task schedule. Public comment on a variety of aspects, beginning with the work program, will guide the development of the plan.

Special Studies

This group of tasks consist of seven special studies. The purpose of these special studies is to investigate certain important water quality problems or relationships in the region. These special studies are listed below:

- Delta outflow
- Shellfish contamination
- Effects of toxicants
(including heavy metals)
- Fish kills
- Dredging and Disposal
- Contingency plans
- Eutrophication

Special studies will be based primarily on existing data. Their purpose is to analyze what is currently known about each of the topics and to present conclusions in a concise form. These conclusions will support the development of the management plans and the integration of the plans.

PHASES OF PLAN PREPARATION

The remainder of this section describes the four phases of the plan preparation.

- Phase I (six months): plan organization, data collection and analysis, development of analytical techniques
- Phase II (eight months): preparation of management plans
- Phase III (six months): integration of management plans into regional Environmental Management Plan
- Phase IV (four months): hearings and adoptions

Phase I

This phase of the program comprises the first six months after EPA approval of the work plan and authorization to begin as well as some work that can be accomplished prior to the official beginning of the planning process. This phase includes the following major activities:

- Development of scopes of work for local agencies and consultants and executions of contracts.
- For the management plans, organization of the studies and analysis of problems.
- At the regional level, development of candidate control measures to be considered in each of the management plans and finalization of the criteria by which control measures will be assessed.
- For the citizen participation program, comments on the work plan followed by comments on the assessment criteria. These comments will be accommodated by modifying the work program and the assessment criteria accordingly.
- Existing data will be obtained and programs for the collection of new data will be developed
- The analytical techniques used to assess the social, economic, and environmental impacts of alternative control measures will be developed, and specifications for the use of these techniques will be provided to the management plans.
- Background information will be collected on institutional authorities and their financial status.
- Collection of local policies on future development will be completed and incorporated into a series of regional projections on land use, population, and employment, which will serve as the basic input to the management plan.
- The special studies will produce a memorandum describing pertinent past work.

Phase II

This phase will last approximately eight months.

- The management plans will formulate and describe alternatives based on specifications developed in the first phase by ABAG. These alternatives will be assessed and evaluated also in accordance with the regional specifications using regionally developed techniques and other assistance from ABAG.
- Institutional/financial mechanisms will be developed for implementation of each of the control measures.

- Those aspects of the continuing planning process particular to the management plan and other planning programs will be described.
- Citizens will comment on the basic projections. At the regional level, these comments will be incorporated into plan development.
- Also at the regional level, analytical techniques developed during the first six months will be in operation to provide information on demand to the management plans.
- Local assessments will be made and regional assessments will begin.
- Institutional/financial analysis will be provided by ABAG to the management plans.
- The development of the plans will be monitored at the regional level, and issues requiring resolution will be formulated by ABAG and presented to the environmental management task force.
- Data collection programs will be carried out, and during the last part of this phase, the environmental data management system will be in operation.
- The special studies conclusions will be factored into the management plans.

Phase III

This phase involves the integration of the separate management plans into an environmental management plan for the region. Listed below are the major activities in this phase:

- At the beginning of this phase, the management plans will have been prepared and forwarded to ABAG. ABAG will integrate these plans with the assistance of the local agencies, consultants, or ABAG staff involved in their preparation. Inconsistencies will be resolved and environmental management plan alternatives will be formulated and described.
- These alternatives will be assessed. The assessment will consist of a compilation of the separate management plan assessments and the continuation of regional assessments of the cumulative effect of carrying out all of the management plans.
- Public participation will focus on the separate management plans and will provide information to be used by ABAG in integrating these management plans.

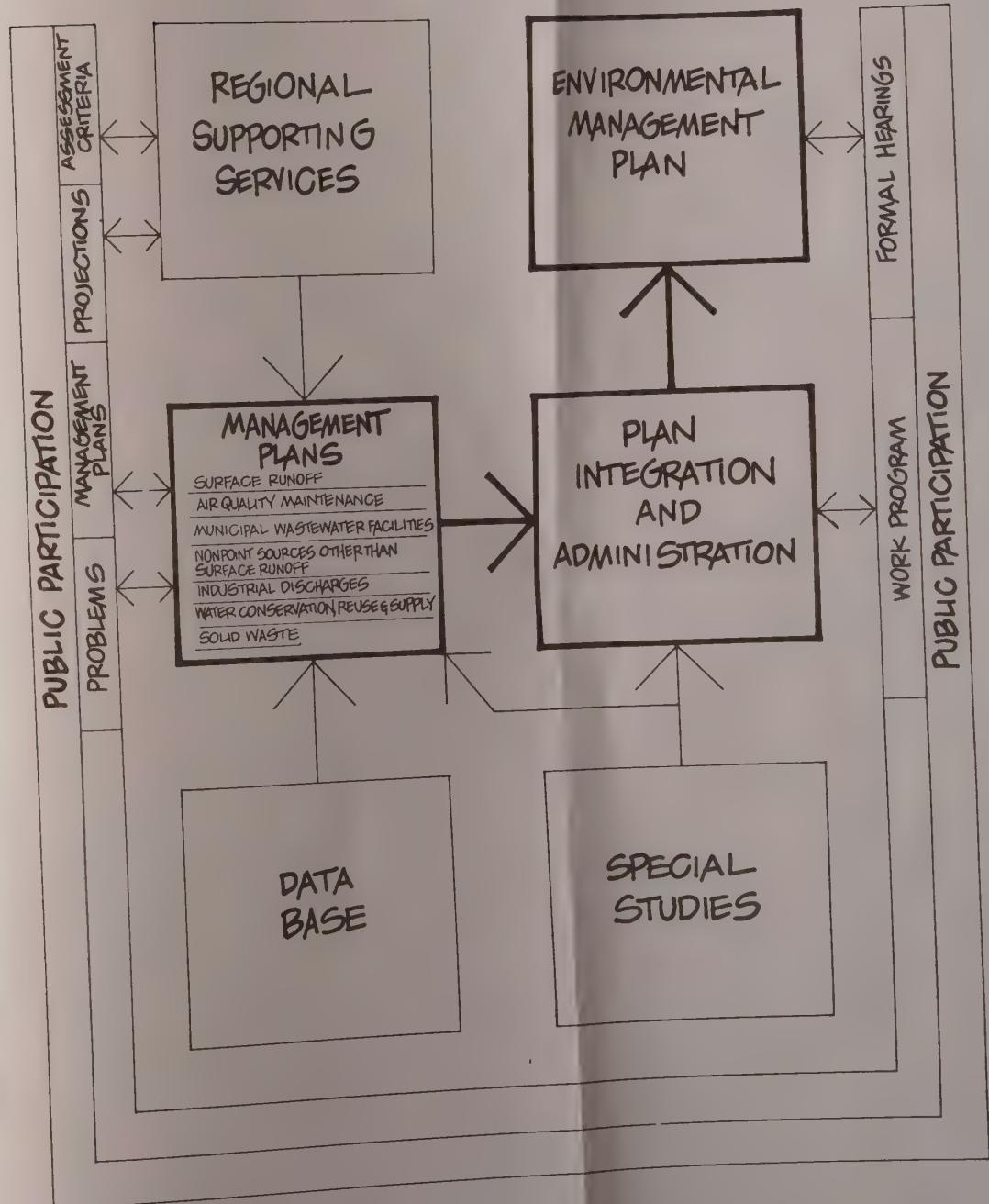
- o The institutional/financial mechanisms for each of the management plans and other studies will be compiled and analyzed, and the continuing planning process will be described.
- o A draft environmental management plan report will be prepared that will be the subject of the next phase of the study.

Phase IV

This phase consists of the regional and state formal hearings and adoptions of the environmental management plan prior to its certification by the governor and presentation to the EPA administrator. The following major activities will take place during this phase:

- o Citizens will comment on the draft plan at formal hearings.
- o ABAG will note citizen comments and will prepare responses to these comments, which, in many cases, will result in modification of the draft environmental management plan.
- o Hearings will be held at the regional level by the Environmental Management Task Force, Association of Bay Area Governments, Regional Water Quality Control Board, and the Bay Area Air Pollution Control District.
- o Hearings will be held at the state level by the Air Resources Board and the State Water Resources Control Board. It is likely that the hearings by several of these agencies will overlap.
- o Each of these agencies will adopt the plan as modified by comments at formal hearings.
- o A final plan consisting of the draft environmental management plan, a record of comments made at the hearing, and responses to these comments (which will likely include modifications to the draft plan) will be forwarded to the governor for certification and subsequent presentation to the EPA administrator.

DEVELOPMENT OF THE ENVIRONMENTAL MANAGEMENT PLAN



ORGANIZATION FOR PREPARING THE PLAN

The figure at the end of this section shows the organization for preparing the plan and comment, certification, and approval process. The certification and approval process for the water quality parts of the plan is set forth by law or by well-established practice. For the air quality parts, the certification and approval process is not firmly established. The approval process for the solid waste parts of the plan will be worked out during the preparation of the plan.

ENVIRONMENTAL PROTECTION AGENCY

EPA will approve the plan after it has been certified by the State Water Resources Control Board (the governor's agent for certification of the water quality aspects) and approved by the State Air Resources Board. The plan will then become the basis for EPA action in the region, including the distribution of construction grants for publicly owned wastewater treatment works.

STATE WATER RESOURCES CONTROL BOARD AND REGIONAL WATER QUALITY CONTROL BOARD

The State Board is the Governor's certifying agent for the water quality management parts of the Environmental Management Plan. Typically, the State Board requires that the Water Quality Control Board for the San Francisco Bay Region adopt the plan before the State Board certifies it.

STATE AIR RESOURCES BOARD

The State Air Resources Board must approve the Air Quality Maintenance Plan before it is approved by EPA. This plan will become part of the State Implementation Plan for air quality.

ABAG EXECUTIVE BOARD AND REGIONAL PLANNING COMMITTEE

The Regional Planning Committee will recommend that the Executive Board approve the Environmental Management Plan as an element of the Regional Comprehensive Plan. Also, agencies farther up the certification and approval hierarchy will probably require ABAG Executive Board adoption before they act.

METROPOLITAN TRANSPORTATION COMMISSION AND BAY AREA AIR POLLUTION CONTROL DISTRICT

MTC is responsible for the transportation element of the Regional Comprehensive Plan. This element is closely related to the Air Quality Maintenance Plan. BAAPCD will be one of

the implementing agencies for the AQMP. The air quality aspects of the Environmental Management Plan must be reviewed by both agencies before it is adopted by the State Air Resources Board.

ENVIRONMENTAL MANAGEMENT TASK FORCE (EMTF)

This is the key policy-making body for the preparation of the Environmental Management Plan. The composition of the task force, shown at the end of this section, includes representatives from cities and counties, citizen groups, and special interest groups. It was charged by the EPA Regional Administrator with the responsibility for preparing the Environmental Management Plan (copies of this charge are available on request from ABAG).

ABAG STAFF

Key ABAG staff members will manage the plan on a day-to-day basis under the direction of the Environmental Management Task Force. Technical staff will do much of the work of preparing the plan.

PROGRAM REVIEW BOARD

This group of representatives of the following agencies will provide ABAG with guidance on State and Federal policies so that an Environmental Management Plan is developed that is consistent with these policies:

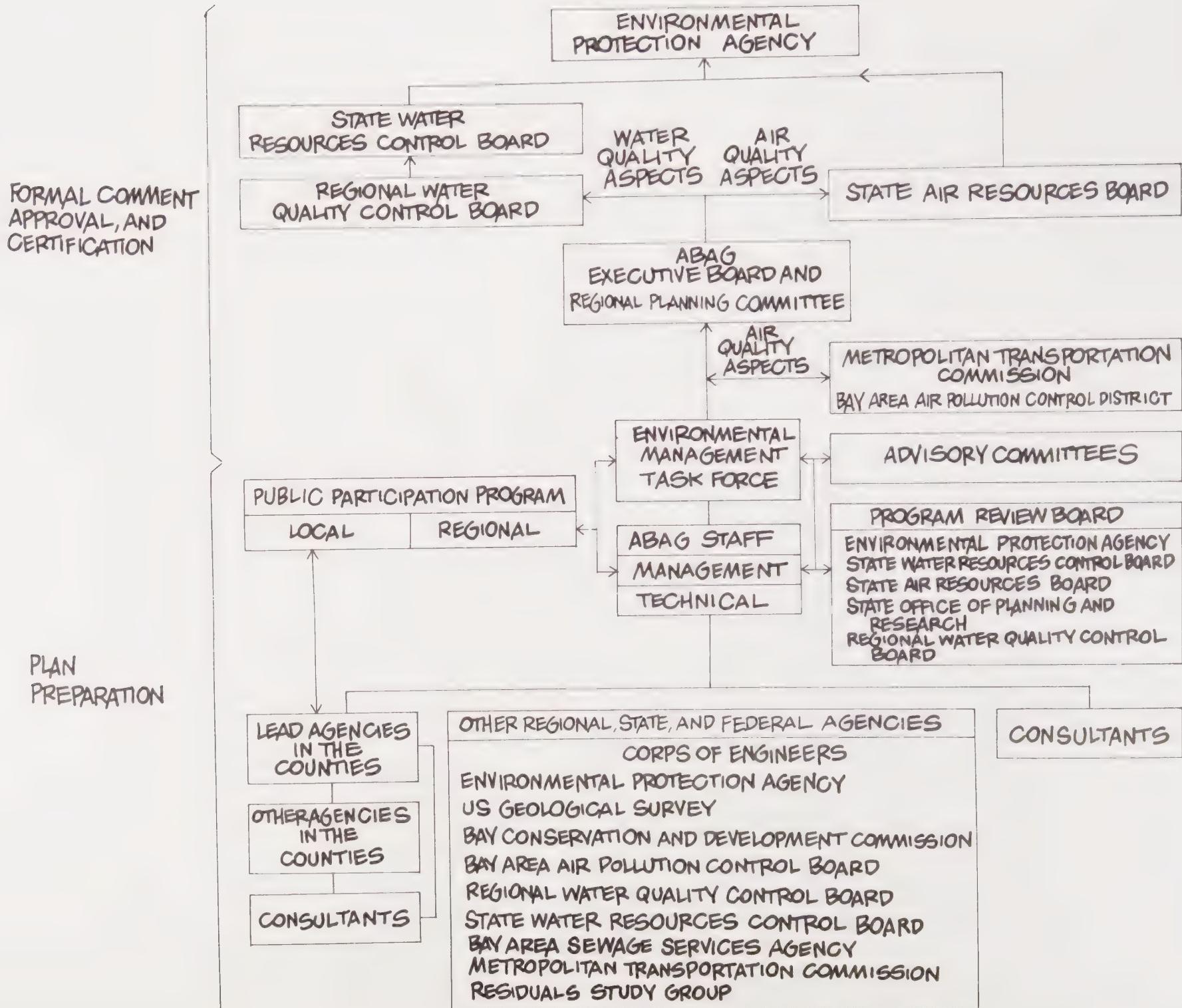
- EPA
- State Water Resources Control Board
- Air Resources Board
- Office of Planning and Research
- Regional Water Quality Control Board

ADVISORY COMMITTEES

These committees will advise the EMTF and ABAG management staff. The committees will include persons with expertise from public agencies, citizen groups, and others.

LEAD AGENCIES IN THE COUNTIES

Each county will have a lead agency or group of agencies responsible for the work performed in the county under contract to ABAG. The role of local agencies in preparing the plan will be discussed in another section of this document.



OTHER AGENCIES IN THE COUNTY

These agencies will provide support to the lead agency or agencies.

OTHER REGIONAL, STATE, AND FEDERAL AGENCIES

The plan will be prepared with the cooperation of other agencies. The Corps of Engineers is studying the effect and control of surface runoff. These and other Corps studies will be coordinated with the preparation of this plan. Staff support will be provided by EPA, the Bay Area Air Pollution Control District, the Regional Water Quality Control Board, the State Water Resources Control Board, and the Bay Area Sewage Services Agency. The U. S. Geological Survey is conducting data collection and analysis programs that will be coordinated with the plan preparation. The Bay Conservation and Development Commission will provide data and advice. The Metropolitan Transportation Commission will assist in transportation and air quality analysis. The Residuals Study Group (East Bay Municipal Utilities District, the City of San Jose, the City of San Francisco, Central Contra Costa County Sanitary District, and BASSA) will prepare a regional residuals plan.

CONSULTANTS

ABAG and local agencies will use consultants either to prepare management plans or to provide specialized technical services in support of the preparation of the Environmental Management Plan.

PUBLIC PARTICIPATION PROGRAM

The Public Participation Program is discussed in a following section. The program will function at the local and regional levels to prescribe and comment on the preparation of the Environmental Management Plan.

ROLE OF ENVIRONMENTAL MANAGEMENT TASK FORCE

Public decisions cannot be made solely on technical grounds. Technical measures to solve air quality, water quality, and solid waste problems require direct expenditures by public and private organizations and can also have indirect effects on the economy, environment, and social characteristics of the region. The public must be made aware of the benefits and also of the effects of these technical measures if agreement on implementation plans is to be achieved. Provision must be made for extensive public involvement and contact with citizen groups.

The Environmental Management Task Force established by the ABAG Executive Board, has been given the responsibility of considering citizen interests, local policies, technical controls, and public costs. The members of the task force are elected officials from counties, cities, and wastewater districts and representatives of interest groups, including business, labor and conservation.

The role of the task force will, in general, be to make decisions concerning the implementation of the plan and to determine the structure and scope of the continuing planning process. The ABAG staff will be responsible for developing alternatives and for assessing the alternatives with respect to their social, economic, and environmental effects. The role of the task force will be to judge this information and to select the best courses of action.

Among the key policy decisions the EMTF is expected to consider are:

- how the Bay Area can best meet the federal requirement that air quality standards must be achieved "as expeditiously as possible"
- how the Bay Area can meet the federal requirement that the goal of fishable - swimmable waters be achieved "wherever attainable" by 1983
- which agencies are responsible for implementing air, water, and solid waste controls, including modifications to existing statutory authority or to existing governmental capability to plan and manage the environment
- the costs of meeting water quality standards, including the distribution of costs among measures to control various sources of pollution (Now much of the burden for improving water quality is placed on point sources. The question of whether some of the cost be shifted to surface runoff or other sources will be addressed.)

- in air quality management, the degree of emphasis on stationary and mobile source controls, based on information regarding costs, effectiveness, and other public objectives
- how best to satisfy equity concerns when applying air pollution controls, especially among population groups such as the poor, the elderly, and the young (There are legal and equity concerns to be satisfied in the transport of pollution from one area of the region to another. These determinations would involve the future uses of land (growth) and transportation development.)
- the extent to which state and federal grants for water pollution control should be conditioned on the implementation of air quality mitigation measures by local agencies
- the degree of involvement of environmental management planning in other on-going planning, including current municipal wastewater facilities (201) planning

Environmental Management Task Force

I. Local Government Representation

A. Cities in Counties

1. Alameda County Cities
Vice Mayor Joyce LeClaire
2. Contra Costa County Cities
Councilman Thomas Corcoran
3. Marin County Cities
Councilwoman Sherry Levit
4. Napa County Cities
Councilperson Dorothy Searcy
5. San Francisco, City of
James Bronkema
6. San Mateo County Cities
Vice Mayor William Hardwick
7. Santa Clara County Cities
Councilwoman Ruth H. Koehler
8. Solano County Cities
A. Councilman Rod Boschee
B. Mayor William Jenkins
9. Sonoma County Cities
A. Mayor Herbert E. Lukas
B. Mayor Nancy Parmelee

B. Counties

1. Alameda County
Supervisor Fred Cooper
2. Contra Costa County
Supervisor James Moriarty
3. Marin County
Supervisor Thomas Price
4. Napa County
Supervisor John Tuteur (EMTF Vice Chairman)
5. San Francisco County
Supervisor Dianne Feinstein (EMTF Chairman)

B. Counties

6. San Mateo County
Supervisor Jean Fassler
7. Santa Clara County
Supervisor Dan McCorquodale

C. City of Oakland, San Francisco, San Jose

1. City of Oakland
Councilman Fred Maggiora
2. City of San Francisco
Office of the Mayor
Mary Burns
3. City of San Jose
Mayor Janet Gray Hayes

II. Regional Agency Representation

1. Bay Area Air Pollution Control District
Councilman William Jelavich
2. Central Coast - Regional Coastal Zone Conservation
Commission
Mayor Ilene Weinreb
3. East Bay Municipal Utility District
Director Helen Burke
4. Metropolitan Transportation Commission
Mayor Richard LaPointe
5. North Central Coast - Regional Coastal Zone Conser-
vation Commission
Councilman Lenard Grote
6. Regional Water Quality Control Board
Councilman Audrey Fisher
7. San Francisco Bay Conservation and Development
Commission
Commissioner Marcella Jacobson
8. Bay Area Sewage Services Agency
Mayor Ralph Bolin

III. Special Interest Representation

1. Associated Building Industry of Northern California
(Housing)
William T. Leonard

III. Special Interest Representation

2. Bay Area Council (Business)
Paul O. Reimer
3. Contra Costa Building and Construction Trades Council
(Housing Construction)
Peter J. Fearey
4. League of Women Voters of the Bay Area (Public Interest)
Mrs. Stana Hearne
5. Lung Association (Citizen Group for Air Quality)
William Moore
6. Mid-peninsula Citizens for Fair Housing (Fair Housing)
Kathy Berson
7. San Francisco Bay Chapter Oceanic Society (Citizen Group for Water Quality)
Dr. Michael J. Herz
8. Sierra Club (General Environmental)
Bob Rutemoeller
9. La Confederacion de la Raza (Non-Urban Minorities)
Lila Gonzales
10. Santa Clara County Farm Bureau (Agriculture)
Carl Voss
11. Labor
To be announced
12. Bay Area Urban League
William P. Beckett
13. Senior Citizens
To be announced

IV. State Legislators

1. Senator Jerome Smith
Santa Clara County

Program Review Board

1. Louis P. Martini
(Regional Water Quality Control Board)
2. W. Don Maughan
(State Water Resources Control Board)
3. Mary Nichols
(State Air Resources Board)
4. Bill Press
(State Office of Planning and Research)
5. Sheila M. Prindiville
(Environmental Protection Agency)

TASKS AND SCHEDULING

The major tasks and their schedules are shown on the chart in the pouch inside the back cover. Each major task and groups of major tasks are identified. This task breakdown and the task descriptions in the next section will be refined as detailed scopes of work are developed within ABAG or between ABAG and other agencies or consultants. These tasks should therefore be viewed as indicative of the major types of work to be done and of the significant relationships between tasks.

SUMMARY OF MAJOR ACTIVITIES

On the following pages are general descriptions for each of the major activities needed to prepare the Environmental Management Plan. These descriptions are keyed to the tasks shown at the top of the Work Plan Overview.

ACTIVITY: Consultant selection

PURPOSE: To develop a procedure for and the actual selection of consultants by ABAG. Consultant selections will be made prior to EPA authorization to begin work. ABAG will attempt to get early approval on some work items so that consultant selection can begin early.

ACTIVITY: Local arrangements

PURPOSE: To hold discussions and written negotiations with local agencies that will be receiving funds from ABAG. The goal of this activity is to arrive at agreements as definitive as possible by the time the work plan is approved by EPA.

ACTIVITY: Contracts

PURPOSE: To execute the contracts that have been negotiated in the previous activities. This should be completed within one month after EPA authorization begins. This is a critical item of work; any delays will probably result in successive program delays.

ACTIVITY: Develop analysis techniques and data base

PURPOSE: To develop the analysis technique and data base that will be used in the two-year and continuing planning processes. The data base involves the compilation of existing data, collection of new data, and the development and implementation of a system to provide ready access to all such data. Analysis techniques, such as population projections and assessment procedures, will be developed to be used to assess the impacts of proposed control measures at local and regional levels. Technical support services will also be developed.

ACTIVITY: Management plans -- organize work; analyze problems, needs

PURPOSE: To get the development of management plans underway expeditiously. This activity will involve coordination by ABAG with respect to the types of control measures to be considered and the specific format of information to be developed for consistency between management plans and regional technical supporting services.

ACTIVITY: Citizen comment on work plan

PURPOSE: To collect comments by citizens on the work plan and to modify the work plan in response to these comments. This activity represents the first major impact the citizen participation program will have on the conduct of the work.

ACTIVITY: Citizen comment on assessment criteria

PURPOSE: To collect citizen responses on the assessment criteria. A candidate list of these criteria will have been developed for comment. The assessment criteria are those things that citizens and their elected representatives would like to know about control measures in order to make decisions concerning implementation.

ACTIVITY: Prepare management plans

PURPOSE: To prepare the management plans, including one separate management plan for surface runoff for each of the Bay Area counties, except San Francisco, which already has a comprehensive surface runoff plan. The plans will be based on regionally consistent information developed by ABAG. The plans will consider the same sorts of control measures and will screen, assess, and evaluate these control measures or groups of control measures according to regionally consistent procedures developed by ABAG.

ACTIVITY: Citizen comment on problems and projections

PURPOSE: To collect comments by citizens on projections and preliminary analyses of problems. This is the third phase of the citizen participation program. The projections will be the regionally consistent projections, especially those on land use, population, and employment, developed by ABAG. Preliminary information on problems will have been developed in each of the management plans.

ACTIVITY: Develop institutional, financial mechanisms for each plan

PURPOSE: To develop the institutional and financial techniques to implement the control measures of each of the management plans. This activity will be based on criteria developed at the regional level.

ACTIVITY: Compile, adjust, and assess management plans

PURPOSE: To compile fourteen management plans (there are seven management plans; the management plan for surface runoff will be developed at the county level for each county except San Francisco, resulting in a total of fourteen), to resolve inconsistencies, and to assess the plans and selected alternatives at the regional level. In addition, local assessments will be compiled. The result of this activity will be a draft environmental management plan, composed of the seven integrated management plans or subelements.

ACTIVITY: Develop regional institutional financial mechanisms

PURPOSE: To examine the institutional and financial mechanisms for each of the management plans and to determine whether regional approaches would be appropriate. If it is determined that they are appropriate, this activity will develop those regional institutional/financial approaches.

ACTIVITY: Develop continuing planning process

PURPOSE: To examine the continuing planning process recommended in the development of each management plan and to assess planning techniques, both technical and institutional, used during the preparation of the environmental management plan. Based on this information, determination will be made as to what sets of actions should make up the continuing planning process.

ACTIVITY: Citizen comment on management plans

PURPOSE: To collect comments by citizens on the fourteen management plans. This is the fourth phase of the citizen participation program. Citizen comments will be incorporated in the activity concerning the compilation and adjustment of the management plans.

ACTIVITY: Regional and state hearings and adoptions

PURPOSE: This major activity consists of the formal hearings and adoptions first by regional and then by state agencies. The section of this work program on plan organization shows the anticipated approval hierarchy.

ACTIVITY: Formal citizen comment on regional environmental management plan

PURPOSE: To collect comments by citizens or citizen groups at the regional and the state formal hearings on the draft Environmental Management Plan. This is the last stage of public comments during the preparation of the Environmental Management Plan. The comments will be noted, and responses will be prepared. The final environmental management plan will consist then of the draft plan, the formal comments on the draft plan, and the responses to those comments, which in many cases will involve modification of certain aspects of the draft Environmental Management Plan. Citizen participation will be ongoing and will be an essential element of the continuing planning process.

Part 2

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TASK DESCRIPTIONS

This section consists of descriptions of each of the tasks identified on the task schedule chart in a preceding section. Each task is described with respect to the following:

- o task name
- o purpose of the task
- o input to the task
- o major products and events
- o method of completing the task
- o coordination requirements with other tasks or other work
- o tentative budget for the task

The tasks are grouped as shown on the task schedule chart in the pouch inside the back cover. The budget for each task is only an approximate allocation. These task budgets are included to indicate the relative emphasis placed on each task. They will be adjusted if necessary.

MANAGEMENT PLANS

This section describes the preparation of seven management plans:

- o surface runoff
- o air quality maintenance
- o municipal wastewater facilities
- o other nonpoint sources
- o industrial discharges
- o water conservation, reuse, and supply
- o solid waste management

Each management plan, when completed, will consist of control measures and the institutional and financial mechanisms to implement the control measures. The institutional-financial mechanisms for the last two management plans--water conservation, reuse, and supply and solid waste--will not be developed in this program but will be addressed in the continuing planning process with the exception of the reuse portion of water conservation, reuse, and supply; institutional and financial mechanisms will be developed for reclamation and reuse.

These management plans will be based on ground rules and projections developed for the region by ABAG and will be developed with institutional and financial assistance from ABAG. During the last year of the two-year planning program, these management plans will be integrated by ABAG into the Environmental Management Plan for the region.

Surface Runoff

Section 208 of the Federal Water Pollution Control Act Amendments of 1972 requires that control measures for surface runoff--a significant source of pollution in many urbanized areas in the country--be considered. The quantity of pollutants entering receiving waters in urban runoff is, in many cases, as great as the same quantity from municipal and industrial sources (Field and Knowles, 1975; URS Research Company, 1974). In fact, calculations based on a hypothetical city indicate that runoff from the first hour of a moderate-to-heavy storm would contribute more to the pollutant load than would the city's sanitary sewage system during the same period of time (Sartor and Boyd, 1972).

Typical pollutants include: organic materials that contribute to the biochemical oxygen demand (BOD), suspended solids, pathogens, sediment from construction and erosion, air pollution fallout, gasoline additives, oil and grease, heavy metals from vehicular emissions, nitrogen and phosphorus from chemical fertilizers, animal wastes, leachates from leaves, and pesticides.

As the rainwater passes through the atmosphere, it picks up pollutants in the form of particulate matter and gases. When rainfall intensity increases, overland flow velocities become sufficient to transport solid and dissolved pollutants. The pollutants ultimately reach the receiving waters through storm water collection systems--gutters, storm sewers, culverts, flood control channels, and natural water courses including intermittent streams. (It should be noted that the combined collection system in San Francisco, in which storm water and sewage are transported in the same pipes, is unique among communities in the Bay Area.) Once the pollutants from surface runoff reach the receiving waters, they can cause water quality problems similar to those caused by municipal and industrial point source discharges.

Additional planning is needed for surface runoff in the Bay Area. The Basin Plan recommended an evaluation of the effect of urban and rural storm water drainage (State Water Resources Control Board, 1975). The State Water Resources Control Board Resolution No. 75-33, designating an areawide planning area and agency for the Bay Area, also noted the need for areawide planning to deal with urban runoff.

As municipal and industrial point sources are brought into compliance with National Pollutant Discharge Elimination System (NPDES) permits and improved source control measures are instituted, surface runoff will constitute a larger percentage of the total annual pollutant load discharged into the San Francisco Bay system (State Water Resources Control Board, 1975).

For example, it was estimated in the Basin Plan that in 1970 surface runoff amounted to about 56 percent of the total heavy metal load discharged to basin receiving waters, compared with 30 percent from municipal and industrial point sources and 14 percent for other nonpoint sources. For the year 2000, it was estimated that surface runoff will contribute about 70 percent of the load, municipal and industrial sources 20 percent, and other nonpoint sources only 10 percent.

Heavy metals and pathogens in surface runoff are a possible cause of shellfish contamination (Regional Water Quality Control Board, 1974). Surface runoff is also a major source of litter and floatables in the Bay and on its shores and mudflats. In addition, it is possible that the heavy metals introduced into the aquatic environment by surface runoff may have direct and indirect effects on the aquatic environment.

Despite what is known about pollutant sources and loads in surface runoff, information on the relationships between pollution sources and their impacts is still very inadequate. In order to develop control measures for surface runoff, more information will be required.

In the course of this study, runoff problems in both urban and rural areas will be examined. However, greater emphasis will be given to urban runoff because it is a more important source of pollution. Near-term control measures for surface runoff will be evaluated. Such near-term control measures as detention and street sweeping may be effective in reducing pollutant loads (ABAG, 1976). They could also be implemented in a relatively short period of time and at a relatively low cost.

An alternative approach, the structural control measures to collect and treat urban runoff, could require capital investments for the region as high as 12 billion dollars (State Water Resources Control Board, 1975). The cost effectiveness of such an approach has yet to be demonstrated. Thus, these measures will be investigated only on a reconnaissance level in order to provide a basis for further planning after the impacts of urban runoff are better understood.

For this management plan, the counties will be asked to take a leading role in developing control measures. Each county will develop a surface runoff management plan, with the exception of San Francisco, which already has one (City and County of San Francisco, 1971). This approach is being taken for the following reasons:

- o Local county agencies are familiar with their own local runoff watersheds and storm collection systems.

- o Since county agencies will be responsible for developing and implementing control measures, they must contribute to any plan that leads to a decision.
- o The problems resulting from surface runoff appear to be local and subregional rather than regional.

The county plans will consist of near-term control measures such as erosion control, ordinances against littering and the deposition of materials in storm drains, and improved street cleaning and catchbasin maintenance. Land use controls to reduce runoff pollution are a likely possibility. The plan will also include reconnaissance level investigations of large-scale structural improvements (treatment, storage, etc.) in order to determine the range of potential costs and benefits.

The counties will also be responsible for developing data on watershed storm drainage systems and land use. To assist the counties, ABAG will contract with a storm water model consultant who will model each basin or watershed and run the model for the counties. ABAG will also provide funds for counties to plan, organize, and undertake a monitoring program to provide better data for model input. ABAG and the counties will jointly assess and evaluate control measures and develop financial and institutional mechanisms for implementing the local plans. ABAG will use information collected by the counties to assess the region's surface runoff problems and to develop a regional surface runoff management plan. The impact of the other management plans, especially the air quality maintenance plan, on the surface runoff management plan will also be evaluated. All plans will be adjusted for consistency. In addition, conclusions and recommendations of the special studies will be incorporated into the management plan.

References

Association of Bay Area Governments. 1976. Integrated Land Use/Air Quality/Water Quality Control Study for Sonoma County. Report in preparation.

California Regional Water Quality Control Board, San Francisco Bay Region. 1974. Staff Report for Proposed Shellfish Policy.

California State Water Resources Control Board. 1975. Annual State Strategy.

California State Water Resources Control Board. 1975. Water Quality Control Plan Report, San Francisco Bay Basin (2).

Field, R., and D. Knowles. 1975. "Urban Runoff and Combined Sewer Overflow." Journal Water Pollution Control Federation, 47(6):1352-1369.

San Francisco, City and County. 1971. San Francisco Master Plan for Wastewater Management.

URS Research Company. 1974. Water Quality Management Planning for Urban Runoff. U.S. Environmental Protection Agency.

TASK: Organize surface runoff management study

PURPOSE: To organize the surface runoff study and finalize detailed work program

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 0 to month 1

INPUT: Environmental Management Work Program, ABAG

MAJOR PRODUCTS AND EVENTS: Develop a detailed work program outline and plan outline for use in preparing local surface runoff plans. Determine local agency organization and structure for the development of the subregional surface runoff management plan.

METHOD: Coordinate among county agencies and ABAG staff.

COORDINATION REQUIREMENTS: All tasks related to surface runoff.

BUDGET: \$3,000

TASK: Describe surface runoff systems

PURPOSE: To describe the systems of streams, major storm sewers, and other means by which surface runoff flows to the Bay or the ocean

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 0 to month 3

INPUT: ABAG guidance on a standardized mapping and map annotation system for describing surface runoff systems

MAJOR PRODUCTS AND EVENTS: Descriptions and maps of the following:

- o location of urban storm water systems, including pipes, pumps, basin connections, inlets, and discharge points for each urban area
- o location of rural collection systems, including highway culverts
- o watershed boundaries and important watercourses and tributaries
- o land use of major tributary areas

A list of hydraulic parameters (length, width, depth, and coefficients) for streams, channels, and pipes; data to be used by ABAG consultant to verify and run stormwater model on schedules developed with the assistance of county agencies

METHOD: Information on storm sewers will be obtained from public works departments or special districts. Field surveys may be necessary for the description of waterways based on a selected sample of tributaries.

COORDINATION REQUIREMENTS: Surface runoff and water quality analytical procedures, land use model, and other study management and administration tasks

BUDGET: \$12,000 (average budget for each county; to be negotiated)

TASK: Describe data needs

PURPOSE: To describe needs for the collection and analysis of new data

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 0 to month 13

INPUT: Surface runoff model consultant

MAJOR PRODUCTS AND EVENTS: A defintion of data, other than that for runoff and drainage systems, necessary for runoff modeling (specific data sources, measurement standards, and methods of data collection and verification); data requirements to include:

- o pollutants: sampling of wet and dry weather flows in tributaries and receiving waters and at various locations in the storm sewer system
- o imperviousness of land used for different purposes based on surface compaction, code requirements, type, location, and length of time used

A design for a long-term monitoring program to determine the impact of urban runoff on the aquatic environment and beneficial uses (runoff data, if necessary, collected from October to December, 1976; funds for data collection included in task on data collection)

METHOD: Data necesary for runoff modeling will be defined from month 0 to month 4. A long-term monitoring program will be designed from month 5 to month 13 before the preparation of the report.

COORDINATION REQUIREMENTS: Surface runoff modeling, water quality data collection, water quality modeling, population and land use modeling tasks

BUDGET: \$4,000 (average budget for each county; to be negotiated)

TASK: Review land use data base

PURPOSE: To review and verify 1973 land use data base developed from satellite photos

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 0 to month 4

INPUT: 1973 land use data base which will be provided by ABAG

MAJOR PRODUCTS AND EVENTS: Review and verify 1973 land use data base developed from satellite photos. (This data will be provided by ABAG.) After the data is verified, it will be used as input for the other tasks to determine the extent and cause of existing surface runoff problems. It will also be used to disaggregate PLUM outputs.

METHOD: Compare existing land use information, which is readily available for counties, with the 1973 land use data base.

COORDINATION REQUIREMENTS: Population and land use modeling and surface runoff modeling tasks

BUDGET: \$3,000 (average budget for each county; to be negotiated)

TASK: Determine extent and cause of existing problems

PURPOSE: To document existing water quality problems caused by surface runoff, especially in areas of high beneficial uses

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 2 to month 6

INPUT: Tasks on water quality data collection and surface runoff analytical procedures, the Regional Board, U. S. Army Corps of Engineers, and ABAG

MAJOR PRODUCTS AND EVENTS: A description of existing quantity and quality of surface runoff in each county; a document listing water quality problems in each county; an assessment of the contribution of surface runoff to these violations in relation to other sources (e.g. pesticides and heavy metal loadings)

METHOD: Storm water model parameters and coefficients will be reviewed. The consultant will be given assistance in refining parameters based on data collection program and in verifying models to be used. Existing quantity and quality of runoff will be determined. A problem list will be furnished to ABAG to determine impact on Bay and ocean water. ABAG will report back to counties on the implication of results

COORDINATION REQUIREMENTS: Tasks on water quality data collection, water quality modeling, water quality objective

BUDGET: \$14,000 (average budget for each county; to be negotiated)

TASK: Determine extent and cause of future problems

PURPOSE: To analyze future problems caused by surface runoff

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 6 to month 9

INPUT: Tasks on surface runoff, and water quality analytical procedures, information on discrete industrial discharges, and municipal wastewater discharges

MAJOR PRODUCTS AND EVENTS: Testing of future growth/land use to determine the magnitude of resulting water quality problems and to determine the relationship of water quality to general plans and zoning; testing of point contribution from discrete industrial discharges and inadequate wastewater facilities; estimation of the contribution of surface runoff to water quality problems in relation to other sources

METHOD: Surface runoff analytical procedures will be used. More emphasis will be given to the analysis of existing problems than future problems

COORDINATION REQUIREMENTS: Tasks on surface runoff analytical procedures, municipal wastewater facilities, and industrial discharges

BUDGET: \$8,000 (average budget for each county; to be negotiated)

TASK: Formulate control measures

PURPOSE: To formulate, describe, and test measures that can be implemented within five years for controlling pollution of the Bay and the ocean by surface runoff

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 5 to month 11

INPUTS: ABAG list of control measures; problem evaluation from previous task; USCE work on surface runoff

MAJOR PRODUCTS AND EVENTS: A list of viable control measures and an analysis of their effectiveness; development of costs and implementation program for the control measures (measures to emphasize near-term solutions, i.e. change of land use, minor structural improvements, ordinances, improved maintenance); development of reconnaissance level, long-term structural solution (treatment and storage), with costs; schedule for action; an estimation of the probable dollar cost of delaying action on surface runoff problems

METHOD: The range of control measures developed by ABAG will be reviewed; control measures for further analysis will be selected. Control measures will be tested using the ABAG consultant storm water model or other analytical procedures for present and future conditions. ABAG will use this output to rerun the water quality model to determine impact. This method of formulation must be used for all alternative groups of control strategies proposed; the groups must be evaluated in terms of acceptability to the county.

COORDINATION REQUIREMENTS: Tasks on water quality modeling and tasks on institutional and financial analysis and assessment and evaluation of control measures

BUDGET: \$15,500 (average budget for each county; to be negotiated)

TASK: Develop institutional and financial analysis for near-term control measures

PURPOSE: To determine the legal and financial mechanisms, including governmental and cost implications, for near-term measures to control runoff pollution

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 9 to month 13

INPUT: Data collected by local agencies and ABAG on the present institutional and financial system for environmental management; a summary by ABAG of institutional and financial options for implementing previously identified control measures (Local lead agencies, with the assistance of ABAG, to use this material to supplement the candidate near-term control measures as inputs to this task)

MAJOR PRODUCTS AND EVENTS: Development of alternative institutional and financial mechanisms to implement candidate near-term measures to control surface runoff pollution; alternative allocation of planning and management responsibilities among various agencies (to be implemented by ordinances, joint powers agreements, contractual relationships, etc.; to be financed by proposed mechanisms to generate capital and operating revenue, as federal funding for surface runoff control facilities is not likely)

METHOD: Local lead agencies will be responsible for establishing evaluation and selection criteria so that alternative institutional arrangements and financing methods can be determined. ABAG will assist the lead agencies as needed during this process by:

- o collecting and preparing data and completing technical memorandum and the list of institutional and financial options
- o conducting a series of monthly information exchange workshops among representatives of local lead agencies to insure that the counties engaged in surface runoff pollution control will not work at cross purposes

COORDINATION REQUIREMENTS: Tasks on institutional and financial analysis, and coordination of local agency participation programs

BUDGET: \$8,000 (average budget for each county; to be negotiated)

TASK: Assess/evaluate near-term control measures

PURPOSE: To assess the local impact of the control measures on social, economic, environmental, and governmental conditions and on other environmental management plans

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 10 to month 13

INPUT: List of assessment criteria and control measures

MAJOR PRODUCTS AND EVENTS: Description of the impact of the control measures

METHOD: Procedures provided by ABAG will be used to assess all alternative groups of control strategies proposed; the groups will be evaluated in terms of their relative acceptability to the counties (ABAG will use the information developed by the counties to arrive at a regional assessment of the surface runoff problems and to develop a regional surface runoff management plan.)

COORDINATION REQUIREMENTS: Tasks with institutional and financial analysis and citizen participation

BUDGET: \$8,000 (average budget for each county; to be negotiated)

TASK: Prepare report

PURPOSE: To bring together all the information on surface runoff developed by the local (county) agencies

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 13 to month 14

INPUT: From all previous tasks

MAJOR PRODUCTS AND EVENTS: At a minimum, the following:

- o A statement on the state of knowledge and relative importance of water quality impacts of surface runoff
- o Development of near-term measures to control urban runoff
- o Development of a reconnaissance level structural solution to collect, store, and treat urban runoff
- o Recommendations for a continuing monitoring program
 - 1) to better quantify urban runoff pollutant loadings
 - 2) to assist in determining the effect of urban runoff on the aquatic environment and its beneficial uses

METHOD: The output of all previous tasks will be reviewed and complied

COORDINATION REQUIREMENTS: All previous tasks

BUDGET: \$4,000 (average budget for each county; to be negotiated)

TASK: Assist in regional compilation, adjustment, and assessment

PURPOSE: To assist in regional compilation, adjustment, and assessment of the management plan

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 14 to month 20

INPUT: All previous tasks

MAJOR PRODUCTS AND EVENTS: An integrated environmental management plan

METHOD: Information and assistance will be provided to the regional assessment and plan integration team.

COORDINATION REQUIREMENTS: Tasks on evaluation and assessment and integration of management plans

BUDGET: \$4,000 (average budget for each county; to be negotiated)

TASK: Participate in advisory committee meetings

PURPOSE: To conduct advisory committee meetings at the local level to guide the development of the county surface runoff plan

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 1 to month 20

INPUT: ABAG and local agency staffs

MAJOR PRODUCTS AND EVENTS: Guidance in the development of the county surface runoff plan

METHOD: Agency representatives and the public will be invited to serve on the committee and convene meetings as necessary

COORDINATION REQUIREMENTS: All previous tasks

BUDGET: \$5,000 (average budget for each county; to be negotiated)

Air Quality Maintenance

The air quality problems of the Bay Area are well documented and generally recognized by its inhabitants, as well as those local, regional, State, and federal agencies responsible for its control. While significant progress has been made towards controlling the sources of air pollutant emissions, ambient air quality continues to frequently exceed established air quality standards. Furthermore, projections estimate violations of these standards will continue into the foreseeable future given existing trends in land use development and population growth in the region.

Achievement of the national ambient air quality standards as required by the Clean Air Act of 1970 and State standards will necessitate even more controls than those currently in existence or scheduled for implementation. This portion of the work program is a part of the ongoing air quality planning activities directed towards attainment and maintenance of clean air for the Bay Area.

BACKGROUND

In 1970, the Amendments to the Clean Air Act were passed. Under Section 110(a)(1) of this Act, the states were given primary responsibility for developing and submitting to EPA state implementation plans (SIP) which contained measures to demonstrate attainment and maintainence of the national ambient air quality standards. The Air Resources Board (ARB) is responsible for developing California's SIP. The first California SIP (State of California, 1972) was found to be deficient by EPA because it did not include adequate control strategies for attaining air quality standards.

As a result of several court suits, EPA required California (and a number of other states) to submit a Transportation Control Plan (TCP) to correct some of the inadequacies of the SIP. Because of the enormity of the task and the short amount of time available, the State defaulted on its responsibility and EPA was forced to promulgate a TCP in several regions, including the San Francisco Bay Area. The TCP proposed by EPA for the Bay Area included gas rationing to achieve air quality standards (TRW, Inc., July 1973).

Shortly thereafter, the State exercised its option to prepare its own TCP. The California Department of Transportation (Caltrans) was given primary responsibility to prepare various California TCPs; responsibility for the TCP for the Bay Area was delegated to the Metropolitan Transportation Commission (MTC). MTC and Caltrans completed a TCP early in 1975 directed toward short-term measures that could be implemented by 1977, the date for compliance with national ambient air quality standards (Metropolitan Transportation Commission, 1975).

A court order (Natural Resources Defense Council v. EPA, 1973) led to an EPA requirement for the identification of air quality maintenance areas (AQMA), areas that have the potential for long-term air pollution problems. The San Francisco Bay Area was identified as an AQMA in June 1974 by the ARB (State of California, 1974) and in September 1975 by the EPA (40 Fed. Reg. 41941)¹. EPA regulations require the development of an Air Quality Maintenance Plan (AQMP) for each AQMA. The AQMP will consider land use and transportation planning measures as well as programs for strict enforcement of stationary source and other technical controls.

In mid-1975, the California Air Resources Board (CARB) established the Bay Area Air Quality Maintenance Plan-Policy Task Force (AQMP-PTF), and initiated Phase I of the air quality maintenance planning process. The proposed two phase planning process is directed at development and implementation of an AQMP for the region.

Phase I is to identify air quality problems and develop a work program to guide the Phase II planning efforts. The more substantive Phase II effort will develop a regional air quality strategy for achievement of the clean air objectives. Thus, the results of Phase II will be the region's response to federal requirements for an AQMP (40 Federal Register 49048).

With the formation of the Environmental Management Task Force (EMTF), composed of a diverse number of public and private representatives from the Bay Area, the AQMP-PTF adopted a resolution in its January, 1976 meeting which led to the integration of the 208 and AQMP planning programs:

"Resolved, that the Phase I Policy Task Force hereby transfers the responsibility for completing Phase I of an Air Quality Maintenance Plan, . . . to the Environmental Management Task Force, . . . and . . . upon acceptance of said responsibility by the Environmental Management Policy Task Force, the Phase I (AQMP) Policy Task Force will immediately cease to exist."

In addition to accepting responsibility to prepare an AQMP in its charge, the EMTF formally resolved to accept all previous AQMP-PTF responsibilities at its second meeting.

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The AQMP-PTF was composed of thirty-five representatives of local and regional governments, in addition to a wide variety of other Bay Area interests -- conservation, business, industry, development, etc.

The air quality portion of the work program which follows is intended to direct the Phase II air quality maintenance planning process. It will guide the preparation of a San Francisco Bay Area AQMP over the next two years. The tasks in this part of the work program are those directly or indirectly related to air quality impact assessment, and thus eligible for funding under the 208 program. These tasks are patterned after the initial AQMP-PTF efforts (Air Quality Maintenance Plan-Policy Task Force, 1976).

OBJECTIVES

The objectives of the AQMP are both numerous and ambitious. In summarizing the basic objectives of the AQMP program, the important points to be remembered are given below.

Integrity of the AQMP

Numerous concerns have been voiced both publicly and privately that the integrity of the AQMP program would be lost or its relative importance severely diluted in a comprehensive environmental management program. To allay these concerns, a number of measures will be taken to ensure certain independent analyses of air quality problems. To date, development of the AQMP work program has been as an identifiable and integral component of the overall 208/AQMP work program. Throughout the conduct of the air quality work, a joint air quality planning team will focus on addressing the air quality issues. This team will coordinate with the other environmental staff to ensure internal consistency of the technical analysis. As the various plans are developed and strategies evaluated, it will be necessary for the various environmental staffs to work even closer to ensure that inter-media impacts have been adequately addressed and that the separate functional area control strategies can be coordinated and integrated to achieve the mandated environmental objectives. A real advantage to the proposed approach is the opportunity to bring the difficult environmental trade-off and decision-making process before a single policy-making body representative of the diverse regional interests. If nothing else, such a process will eliminate the frequent "after-the-fact" environmental bartering which takes place to argue against often needed environmental programs.

Coordination of Regional Air Quality Planning

A variety of air pollution planning activities is conducted in the Bay Area by different agencies. In addition to ABAG, the more active agencies are the EPA, CARB, MTC, CALTRANS, and BAAPCD. To avoid duplication of these planning activities,

the AQMP will coordinate all air quality planning efforts and serve as a focal point for linking these efforts to the environmental management program. A means to assist in this coordination will be formation of a joint technical staff with representatives from the affected regional agencies. Memoranda of understanding are being prepared among the agencies participating in this joint technical team concept.²

Achievement and Maintenance of Air Quality Standards

As required by the Clean Air Act of 1970, the alternative control strategies to be developed through the planning process will demonstrate achievement and maintenance of promulgated national and State ambient air quality standards. Due to pending changes in the Clean Air Act and the severity of the Bay Area's air pollution problems, the specific time tables for achievement of these standards is uncertain. An underlying premise of the AQMP will be development of strategies for achievement of standards as expeditiously as possible (considering economic, social and other environmental impacts) and maintenance of these standards thereafter. Stated differently, the air quality tradeoffs will center on implementation schedules or time tables as opposed to relaxing of the standards themselves.

Integration of Air Quality Assessment

To date, the failure of many air quality planning proposals has been in part attributable to the narrowly conceived impact assessments conducted. Many programs have been proposed without a detailed and careful examination of the total impacts involved -- economic, social, political, and environmental. This work program proposes integration of air quality assessment within the overall 208 impact assessment framework to achieve maximum consistency of regional environmental objectives. Such integration will ensure an overall assessment of all control strategies including those developed primarily for air quality improvement. It will also provide a mechanism for assessing important inter-media impacts. Integration of air quality considerations into the local decision-making process will also be addressed.

A specific example of where the overall impact assessment procedures will be used to deal with complex problems is in addressing the secondary air quality impacts of proposed 201 facilities. An issue to be examined is the utility of implementing mitigation measures as grant conditions on 201 projects to achieve air quality improvements. Unlike a number of previous studies conducted on this topic, the AQMP will

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Resolution adopted by the AQMP-PTF in January, 1976: "To facilitate the formation and support of this joint staff group, interagency arrangements such as memoranda of understanding ... are encouraged."

evaluate the effectiveness, costs, and basic merits of the program within a regional context. The degree and extent of involvement in the air quality mitigation measure aspects of 201 projects will be determined by EMTF.

Time Frames for Adoption and Implementation

An important aspect of any plan development is timing. The diverse nature of environmental problems being addressed and controls to be proposed will require that plan adoption and implementation schedules be coordinated. To facilitate this, time frames for AQMP adoption and implementation will be coordinated with the other management plans' adoption and implementation schedules. An overall program objective is minimal delay from plan completion to adoption and minimal time separation between the adoption and implementation phase of all management plans. While the timing for adoption of the various management plans can be scheduled within certain limits, the implementation schedules will be spread over several years. In part, this is due to the many different controls likely to result from the program and the diversity of agencies responsible for the implementation of the controls.

Throughout, substantial efforts will be devoted to development of realistic and workable implementation programs. To aid local governments, procedures and/or guidelines for local and regional adoption of the AQMP will be prepared. Clearly, another major objective of the AQMP will be development of mechanisms for a continuing AQMP planning process.

References

Air Quality Maintenance Plan-Policy Task Force. January, 1976. Preliminary Air Quality Maintenance Plan (AQMP) Work Program.

Metropolitan Transportation Commission. March 12, 1975. Proposed Transportation Control Plan for the San Francisco Bay Area Air Quality Control Region.

Natural Resources Defense Council v. EPA. (D.C. Cir., 1973.)
4 ERC 1945, 475 F. 2d 968.

State of California, Resources Agency, Air Resources Board. January 30, 1972. The State of California Implementation Plan for Achieving and Maintaining the National Ambient Air Quality Standards.

State of California, Resources Agency, Air Resources Board. June 13, 1974. The State of California Implementation Plan for Achieving and Maintaining the National Ambient Air Quality Standards - Revision 5.

PROCESS AND SCHEDULE

Development of any work program requires identification of tasks to be completed, the relationship between tasks, and constraints placed upon the program (e.g., time, budget).

The AQMP portion of the work program has five major components:

- o Description - Tasks which describe the past and present air quality conditions.
- o Prediction and Analysis - Tasks which forecast the air quality implications of future scenarios; these scenarios will range from alternative land use and transportation plans to a variety of specific control strategies.
- o Impact Assessment - Tasks which analyze the economic, social, and environmental impacts of the alternatives forecast previously.
- o Plan Formulation - Tasks which, based upon all the previous technical analyses, assist the decision makers in formulating an AQMP for air quality improvement. Included in the plan formulation are tasks to develop and prepare an implementation program.
- o Plan Adoption - Tasks to disseminate the AQMP to the public and local governments; also, tasks to assist in the adoption and implementation programs as needed -- guidelines, technical assistance, etc.

Implicit throughout the entire process is the assumption that public participation, intergovernmental coordination, and public information efforts will be undertaken. Furthermore, it is understood that the planning process does not start at time "zero," since it is currently ongoing, nor does it stop at two years when the program formally ends -- it is intended to be a continuing planning process.

INTEGRATION OF THE AQMP AND OTHER MANAGEMENT PLANS

The integration of air quality maintenance planning with other environmental programs occurs at many different places within the work program. The level or degree of integration varies considerably and may involve:

- o Coordination and information exchange
- o Interfacing of the technical assumptions and analyses

- o Combining of similar tasks required of separate functional area programs

Throughout the conduct of the work program, the extent of integration will be dictated by several pragmatic concerns:

- o Operational efficiency
- o Avoidance of duplicating planning efforts
- o Consolidation of planning support services
- o Focused program and project management structure

Given the most ambitious attempts to fully integrate the environmental management programs, there are clearly work tasks which must be done separately for each functional area. Thus, although the extent of integration is influenced by "workable" program management concerns, the ultimate criteria for work tasks integration will be the requirement for sound technical analysis. It is neither the intent nor the philosophy of the program to use integration of the environmental plans to dilute the efforts of achieving each functional area's objectives. Instead, integration is seen as enhancing the opportunities for developing acceptable environmental management plans. More specifically, development of an AQMP within the context of a regional environmental management element is seen as offering the greatest potential for ultimate AQMP adoption and implementation.

A description of how the various AQMP tasks will be integrated with the other environmental tasks is provided below. The discussions have been organized around the five major AQMP work program components.

Description

The description component deals with describing historical and present air quality conditions. Tasks in this portion of the work program will largely be done independently of other environmental tasks. The main exception is selection of the "base year" which needs to be coordinated with other management plans, primarily for purposes of facilitating data collection in a consistent manner.

Prediction and Analysis

Much of the input data required for forecasting future air quality requires close coordination with tasks developing alternative land use and transportation plans. Common data bases for population, land use, and other demographic statistics will form the basis upon which the environmental (including air quality) baseline conditions will be defined.

In a similar fashion, future alternative land use and transportation scenarios will be projected for all environmental programs to consider. Thus, integration of this component will occur primarily through specification of uniform baseline and future conditions. By and large, the translation of these conditions to environmental quality by functional area requires separate and independent analyses. For example, once the baseline and future conditions are defined, the air quality implications of the alternatives can be analyzed. The analysis may or may not be related to other media analyses. At a minimum, however, frequent information exchange is envisioned to provide overall direction and guidance to all the analysis tasks.

Impact Assessment

The overall work program proposes a single impact assessment framework for all management plans to be developed. This assessment framework will address all environmental problems and involve both local and regional interests. The impacts to be analyzed will be social, economic, political, and environmental.

The evaluation criteria to be established will provide a common denominator upon which subsequent plans and proposed programs can be uniformly judged. All interested parties and potentially affected agencies will have an opportunity to provide input to the evaluation criteria to be used in the impact assessment process. With respect to achieving air quality objectives, it should again be noted that federal mandates do not permit "tradeoffs" in the attainment and maintenance of standards, but do allow flexibility in the time tables deemed necessary to accomplish the goals.

The overall assessment process will be a focal point for evaluating all impacts from the management plans developed. Thus, it serves as a focus for environmental tradeoffs which may be required. This portion of the AQMP program will be fully integrated with the other management planning efforts.

Plan Formulation

Following a fully integrated assessment process, the plan formulation component will focus mainly on air quality considerations. As other environmental strategies are formulated, a range of alternative AQMP strategies will likewise be evaluated. Coordination and information exchange between programs will be required but due to the diverse nature of problems being addressed, substantive integration of the separate plan formulation tasks is neither desirable nor readily accomplished. Even if certain control tactics or strategies were to be recommended to achieve multiple environmental goals, the

AQMP will need to be prepared as a separate and distinct plan to facilitate its subsequent submittal to the California Air Resources Board.

Plan Adoption

Integration of the AQMP adoption process with other management plan adoption procedures is possible to a limited extent. At the local level an integrated adoption process will be utilized, with cities and counties being requested to approve and adopt the Environmental Management Element to the Regional Plan. At the regional level, single purpose agencies or special districts would be more likely to approve specified management plans. For example, it is anticipated that BAAPCD and MTC would approve the AQMP, due to their required involvement in air quality planning activities.

Throughout the planning process other tasks will be conducted in an integrated fashion. For example, it is envisioned the public participation, public information, and intergovernmental relations aspects of the program will be conducted in an integrated manner. Lastly, internal project management and provision of necessary support services will be focused in order to facilitate efficient and effective conduct of the study.

PARTICIPANTS/DIVISION OF AGENCY LABOR

The AQMP is to coordinate air quality planning activities for the region. Due to the divergent mandates and responsibilities of the agencies involved in air quality planning, the AQMP program requires active participation by a number of agencies. The AQMP program is envisioned as a cooperative planning effort with clear specification of agency labor and shared responsibility among those agencies involved.

To this end, the AQMP-PTF adopted a resolution encouraging formation of a "joint technical staff" to conduct development of the AQMP. To facilitate formation of such a team, memoranda of understanding or joint powers agreements were recommended. At a minimum, the joint technical staff was to be represented by ABAG, BAAPCD and MTC.

As part of the work programming efforts and in an attempt to further define the respective agency roles and levels of involvement in development of an AQMP, the following progress has been made in organizing a joint technical staff:

- o CARB - Working arrangements have been made for direct participation and support by the CARB in developing the

AQMP. Other CARB staff will continue to review and monitor work progress and serve in a general liaison role. Both types of involvement will be funded by EPA directly through the CARB's annual operating grant (Section 105 of the Clean Air Act).

- o BAAPCD - A Memorandum of Understanding with ABAG has been finalized facilitating BAAPCD involvement in the joint technical staff. The BAAPCD will provide technical assistance in many areas of the AQMP development.
- o MTC - Work is underway to renew the existing Interagency Agreement for cooperative planning efforts. The update would address MTC involvement in the environmental management program, including the AQMP.
- o CALTRANS - CALTRANS has indicated a willingness to participate in the AQMP planning process. Specific details on level, extent, and type of involvement are yet to be determined.

The basic philosophy behind the "joint technical staff" approach is to utilize the best available personnel (irrespective of agency representation) and resources to undertake the AQMP preparation. The approach is designed to promote synergism by drawing upon a wide spectrum of technical and planning expertise. The involvement of key regional agencies in the planning process will also ensure that the respective agency interests are represented throughout.

COORDINATION OF ONGOING AND OTHER RELEVANT STUDIES

Coordination of the AQMP portion of the work program with other relevant air quality studies is proposed to occur at three levels -- regional, State, and federal. With the formation of a joint technical staff, much of the coordination among ABAG, CARB, BAAPCD, and MTC is accomplished. Thus, access to relevant information, new data and other studies within each agency are directly accessible for the AQMP.

At the State level, coordination is achieved through the Oakland based CARB-AQMP basin team. Relevant air quality planning activities which require coordination are CARB supported studies, both in-house and under contract. New data, analytical procedures, or research findings which could bear on the development of the AQMP will be coordinated through the basin team. Similarly, the basin team will coordinate with CARB basin teams in other California areas to convey significant findings which may assist or impact the Bay Area AQMP.

Federal coordination will be conducted with EPA Region IX representatives. This coordination again entails staying abreast of in-house and contract research. As an example, last year

several EPA sponsored studies examined Bay Area air pollution problems. Throughout the AQMP planning process, future studies will be coordinated with the joint technical staff to avoid duplication of efforts and ensure consistency in technical analyses conducted. Relevant findings will be used in development of the AQMP as appropriate.

RESOURCES/ALLOCATION OF WORK EFFORTS

A number of factors preclude development of a detailed budget breakdown for the AQMP portion of the work program:

- o Details on the extent of interagency involvement have not been finalized by the agencies participating in the joint technical staff; in part, this uncertainty centers around funding sources available to conduct their ongoing programs. Definition is required of what additional efforts are necessary on the part of these agencies in order to participate in the AQMP development.
- o As requested by the AQMP-PTF, separate funding is being sought to supplement the maximum resources currently available for AQMP development. If and when such funding were to become available, the budgets would be modified accordingly.
- o Certain tasks related to AQMP development are supportive of all seven management plans -- public participation, impact assessment, plan integration and administration.

The budget for the AQMP tasks described in this portion of the work program is \$280,000. Additional resources for AQMP are included in: data collection coordination and data management system; data collection; population, land use, employment and transportation projections; air quality analytical procedures; assessment and evaluation; institutional/financial analysis; public participation; and plan integration and administration. The following tasks are those directly or indirectly related to air quality impact assessment, and thus eligible for funding under the 208 program. Total resources for the AQMP include funds anticipated (and to a limited extent committed) from EPA, CARB, in-kind services of other agencies, and other ABAG funding sources.

TASK: B.00 - Base year description

PURPOSE: To prepare a historical and current description of air quality in the Bay Area (This work element presents the existing air quality problems.)

RESPONSIBILITY: ABAG; BAAPCD

START AND COMPLETION DATE: Month 0 to month 3

INPUT: B.10 - Base year selection - Selection of a common base year for data collection purposes and as a basis for the air quality description.

B.11 - Review emission inventory files - A critical examination of all emission sources to determine their relative contribution to the overall air pollution problem; particular attention to be given to technical assumptions used in compilation of the inventory.

B.12 - Review demographic data bases - In conjunction with the team developing demographic data (population, employment, etc.), ensuring that the necessary data is available or developed for the base year selected.

B.13 - Review air quality data - As part of the ongoing BAAPCD activities preparation of an updated air quality data summary. Within certain constraints, use of the most currently available air quality data.

B.14 - Review other time-series data - Evaluation and collection of other appropriate time-series data useful in the analysis. This may include fuel consumption statistics or other economic data.

B.20 - Aerometric data review/summary - More extensive historical review of air quality data for developing air quality trends analysis. In addition to the base year, a review of all relevant historical data to understand trends and sort out natural fluctuations of air quality.

B.21 - Update/provide summary for all pollutants for base year selected - Preparation of a current air quality summary for the base year selected.

B.22 - Prepare current air quality historical trend summary - Using the results of task B.21 to prepare an updated trends analysis of air quality data. Basically preparation of a current version of the air quality trends.

B.30 - Base year emission inventory compilation - For the base year selected, this task develops a detailed emission inventory for the region.

B.31 - Review most recently available emission inventory - An examination of the most current emission inventory by source categories; all sources and pollutants for which data are available will be reviewed.

B.32 - Critically review source by source technical assumptions - A variety of technical assumptions are required in compiling any emission inventory; also, more recent data and information are constantly becoming available for improving these assumptions. This task is intended to provide a critical examination of all technical assumptions needed in the emission inventory to ensure the most recent data are used. Among the types of assumptions to be examined are emission factors, reactivity (for hydrocarbons), compliance schedules, and the temporal and spatial distribution of pollutants.

B.33 - Update emission inventory for base year selected - Based upon tasks B.31 and B.32, this task will prepare an updated emission inventory for the base year selected. It will reflect the best available information and state areas of greatest uncertainty in the emission estimates.

B.34 - Format emission inventory in manner compatible with prediction and forecasting tasks (P.00) - Frequently base-year data and forecast data are incompatible. This task involves anticipating in advance the form of the forecasting prediction data and ensuring base year data will be compatible. Most likely, some data formatting will be required to provide consistency and the desired temporal resolution of all data sets.

MAJOR PRODUCTS AND EVENTS:

B.90 - Base year description documentation

B.91 - Document results of tasks B.10-B.30; prepare technical memorandum, "Air Quality in the Bay Area -- Past and Present"

B.92 - Document results of tasks B.10-B.30; prepare technical report, "Air Pollution Control in the Bay Area -- Emission Sources and Control Programs"

COORDINATION REQUIREMENTS: Ongoing BAAPCD and CARB programs and activities

BUDGET: \$20,000 (additional resources included in tasks on data collection and population, land use, employment, and transportation projections)

TASK: b.00 - Base year technical assumptions

PURPOSE: To specify all base year technical assumptions required to describe the base year air quality conditions; also, to provide clear documentation for all assumptions used

RESPONSIBILITY: ABAG; BAAPCD; MTC; CARB

START AND COMPLETION DATE: Month 1 to month 3

INPUT: b.10 - Identify from B.00 tasks, technical assumptions which need to be made - In order to ensure compatibility with the forecast data and to provide a forum for critique of base year conditions, this task will specify all technical assumptions which need to be made for describing the base year.

b.11 - Prepare preliminary set of technical assumptions - Once the technical assumptions which need to be made are identified, the best available information will be used to generate a preliminary set of technical assumptions. This information may range from detailed research findings to educated guesses.

b.12 - Establish list of technical reviewers to comment - To gain the benefit of recognized experts, a list of technical reviewers will be established to provide comments and otherwise critique the preliminary technical assumptions generated.

b.13 - Revised technical assumptions based on comments - Comments received from the technical reviewers will be incorporated as appropriate in developing a revised set of base year technical assumptions. These assumptions will serve as input to the B.00 tasks for base year description.

MAJOR PRODUCTS AND EVENTS:

b.90 - Base year technical assumptions documentation

b.91 - Document results of b.10 tasks and prepare technical memorandum, "Base Year Technical Assumptions for AQMP Analysis"

COORDINATION REQUIREMENTS: MTC input on base year transportation assumptions, e.g., regional VMT, trips, modal splits, vehicle types, average speeds

BUDGET: \$10,000 (additional resources included in tasks on data collection and population, land use, employment, and transportation projections)

TASK: P.00-Prediction/forecasting and strategy analysis

PURPOSE: To forecast future baseline conditions, alternatives to the baseline conditions (including various control tactics and strategies), and to project the air quality implications of the forecasted scenarios

RESPONSIBILITY: ABAG; BAAPCD; MTC; CARB; consultants

START AND COMPLETION DATE: Month 1 to month 9

INPUT: P.10 - Baseline specification - Once the base year conditions have been accurately described, it is necessary to define the anticipated baseline conditions. This is sometimes referred to as the "Nominal Forecast," "Existing Trends," or "Do-Nothing" alternatives

P.11 - Define population, land use, and transportation for the baseline (or existing trends) conditions - As part of the basic data base to be used in the environmental management programs, population, land use, and transportation data will be provided for the baseline conditions. Work on this task is ongoing as part of the ABAG Series 3 Base cases efforts.

P.12 - Develop and format data for air quality analysis - The data from task P.11 will be formatted and developed where necessary into a form suitable for air quality analysis.

P.20 - Alternatives selection and definition - This task will develop the population, land use, and transportation alternatives to be evaluated for their air quality implications. Due to the many permutations and combinations possible, only a limited number of alternatives will be analyzed in detail.

P.21 - Define population, land use, transportation alternatives - Also, as part of ongoing ABAG efforts, alternative population, land use and transportation scenarios will be provided (from the ABAG Series 3 Projections effort).

P.22 - Select alternatives (combinations) to be analyzed - From Task P.21, a limited number of alternatives will be selected for detailed analysis. The number of alternatives analyzed will in part be dictated by available resources and time available. The choice of alternatives will be partially based on the policy implications of the alternatives.

P.23 - Select projection/forecast years - In conjunction with the other management planning

programs and interim air quality deadlines, forecast years will be selected. Choice of these projection years will consider availability of data for the years in question.

P.24 - Develop data in manner suitable for air quality analysis - This task is another of the data formatting and adjustment efforts where the available data are massaged in order to derive the air quality implications. The extent of these efforts is dependent on the level of detail and accuracy desired in the subsequent analysis.

P.30 - Projected emission inventory - This task constitutes the foundation upon which all ensuing analyses proceed. Typically, large uncertainties are anticipated due to the often poorly defined "best available" information.

P.31 - Collect, develop data for point source growth projections - Development of procedures for accurately projecting future emissions from point sources. Requires knowledge of compliance schedules, control equipment and processing procedures, economic conditions, etc.

P.32 - Based on P.31, compliance schedules, and other factors, project sources for selected future years - Utilizing knowledge of the point sources and the external factors which affect these emissions, provide projections for the point sources.

P.33 - Collect, develop data for nonpoint source growth projections - With a knowledge of the nonpoint sources, collect relevant data to allow for accurately forecasting future emissions from these sources. Where direct data are not available, growth factors may need to be developed.

P.34 - Based on P.33 and other factors, project nonpoint sources for selected future years - using the growth factors developed in the previous task, nonpoint source categories will be projected. An examination will also be made to investigate additional unrecognized nonpoint sources which may be contributing to the emission inventory.

P.35 - Ensure format consistency of all projected data with B.34 - In anticipation of the subsequent analyses to be conducted, this task will ensure consistency of data formats.

P.40 - Emission/air quality relationship review - This task examines the analytical tools available for assisting in the technical analyses. It will report on "state-of-the-art" as well as simpler forms of analyzing the air quality impacts of alternative control strategies.

P.41 - Review available air quality models for AQMP applications - Building upon the AQMP-PTF subcommittee report on modeling, this task will summarize available modeling techniques and comment on their appropriateness for AQMP alternatives analysis.

P.42 - Develop evaluation criteria for models under consideration - Again, using input from the modeling subcommittee report, evaluation criteria will be presented for deciding which analytical tools are appropriate for the analysis desired. Factors to be considered are types of pollutants, spatial and temporal resolution requirements, costs, data requirements, policy sensitivity, etc.

P.43 - Conduct simplified analysis to highlight most serious projected air quality problems - Due to the many alternatives available for analysis, a two step approach is proposed -- simplified techniques will be used in cases where many alternatives are tested and more rigorous analyses will be considered when a few well defined alternatives need to be analyzed in depth.

P.44 - Recommend a series of air quality impact assessment techniques for use in forecasting - Based upon tasks P.41-P.43, prepare recommendations on which techniques should be used in forecasting air quality. A variety of techniques may be appropriate depending on the particular analysis needs.

P.50 - Air quality forecasts - This task will provide the air quality forecasts for the alternatives to be analyzed. The projected air quality levels will provide the basis for examining the policy implications behind each alternative proposed.

P.51 - Calibration of selected forecasting techniques for baseline - After the determination of which analytical techniques are to be used, certain calibration procedures will be exercised to assure the technical validity of the analysis results.

P.52 - Conduct basic air quality forecasts for major (or range of) alternatives using simplified procedures and on a regional scale - In an attempt to identify the major issues -- either among the alternatives or proposed control strategies -- simplified forecasting procedures will be used. In most cases,

these manual techniques should provide guidance and insight into which alternatives appear desirable for a more detailed analysis.

P.53 - Review alternatives (or range of alternatives) to be analyzed in more depth using more sophisticated prediction techniques - Determine which alternatives should be subjected to more rigorous technical analysis. Use results of task P.52 as input to the deliberations.

P.54 - Conduct in-depth technical analysis of select number of basic alternatives -- Use several techniques for a comparative analysis - Based upon the previous task, conduct the detailed analysis on a select number of alternatives. Where appropriate, use a comparative analysis of several techniques to improve the validity of the results.

P.55 - Review results of comparative analysis from P.52 and modify/adjust results if warranted or necessary - Critically review the results of P.54. Especially where apparent discrepancies exist in the comparative analysis results, examine all input data and basic model structures to resolve, reconcile, or otherwise explain differences in technical outputs.

MAJOR PRODUCTS AND EVENTS:

P.90 - Prediction/forecasting and strategy analysis documentation

P.91 - Document results of task P.30; prepare technical memorandum, "Project Emissions Inventory"

P.92 - Document results of tasks P.40 and P.50; prepare technical report, "Air Quality Trends and Forecasts"

COORDINATION REQUIREMENTS: ABAG, BAAPCD, MTC, CARB, and consultants

BUDGET: \$25,000 (additional resources included in tasks on data collection; population, land use, employment, and transportation projections; air quality analytical procedures)

TASK: p.00 - Prediction/forecasting technical assumptions

PURPOSE: To clearly identify, before major technical analyses are conducted, what the underlying technical assumptions are with respect to forecasting and predicting future conditions

RESPONSIBILITY: ABAG; BAAPCD; MTC; CARB

START AND COMPLETION DATE: Month 2 to month 5

INPUT: p.10 - Identify from P.00 tasks, technical assumptions which need to be made - This task will identify and provide documentation on all technical assumptions used to generate the technical analyses.

p.11 - Prepare preliminary set of technical assumptions - After the technical assumptions are identified, the best available information will be used to generate a preliminary set of technical assumptions. A considerable range of uncertainty is anticipated for the estimates developed.

p.12 - Establish list of technical reviewers to comment on assumptions - To gain the benefit of recognized experts, a list of technical reviewers will be established to provide comments and otherwise critique the preliminary technical assumptions generated.

p.13 - Revise technical assumptions based on comments - Comments received from the technical reviewers will be incorporated as appropriate in developing a revised set of projection/forecasting technical assumptions. These assumptions will serve as input to the P.00 task.

MAJOR PRODUCTS AND EVENTS:

p.90 - Prediction/forecasting technical assumptions documentation

p.91 - Document results of task p.10 tasks; prepare technical memorandum, "Prediction/Forecasting Technical Assumptions for AQMP Analysis"

COORDINATION REQUIREMENTS: With BAAPCD on point source assumptions and MTC on transportation related assumptions

BUDGET: \$15,000 (additional resources included in tasks on data collection; population, land use, employment, and transportation projections; air quality analytical procedures)

TASK: c.00-Control options

PURPOSE: An investigation of the available control options and mitigation measures that might be pursued for improvement of air quality

RESPONSIBILITY: ABAG; BAAPCD; MTC

START AND COMPLETION DATE: Month 1 to month 5

INPUT: c.10 - Inventory control options and mitigation measures which could be adopted for air quality improvement - This task is basically preparing a "shopping list" of possible control tactics which might be implemented. Similarly, a subset of the controls will be listing of mitigation measures. Previous work in this area will be relied upon to initiate this task.

c.20 - Evaluate control options and mitigation measures for feasibility of implementation and technical effectiveness - An analysis of the control options and mitigation measures for their effectiveness in reducing pollutant emissions, public acceptability and feasibility for implementation. This task will be largely qualitative in nature.

c.30 - Develop and recommend control measures and strategies for analysis - Following the screening conducted in task c.20, specific control measures will be recommended for more detailed analysis. Also, groups of measures or strategies will be formulated for further analysis.

MAJOR PRODUCTS AND EVENTS:

c.90 - Control options documentation

c.91 - Document results of tasks c.10-c.20; prepare technical memorandum, "Air Pollution Control Options -- An Inventory and Evaluation"

COORDINATION REQUIREMENTS: ABAG, BAAPCD, and MTC; input from local governments and interested parties

BUDGET: \$5,000 (additional resources included in tasks on assessment and evaluation)

TASK: A.00 - Impact assessment

PURPOSE: To provide an assessment of all possible impacts resulting from controls proposed, including social, economic, political, and environmental concerns

RESPONSIBILITY: ABAG; BAAPCD; MTC; consultants

START AND COMPLETION DATE: Month 8 to month 13

INPUT: A.10 - As part of the overall impact assessment procedures, impacts from proposed air pollution control strategies will be examined. For example, air quality impacts from the location of new facilities (e.g., industrial, commercial, or municipal facilities) will be analyzed. In addition, the growth-inducing aspects of these facilities, mitigation measures, and socio-economic impacts will be incorporated.

A.20 - The relative importance of stationary, mobile, and area source controls will be detailed. Equity and efficiency concerns will be included in preparing the impact assessment.

MAJOR PRODUCTS AND EVENTS:

A.90 - Impact assessment documentation

A.91 - Document results of tasks A.10-A.20; prepare technical report, "Air Pollution Controls and Impacts"

COORDINATION REQUIREMENTS: ABAG, BAAPCD, MTC and local governments; other EMP tasks on assessment and evaluation

BUDGET: \$20,000 (additional resources included in task on assessment and evaluation)

TASK: a.00 - Evaluation criteria

PURPOSE: To develop evaluation criteria to be used in the impact assessment task

RESPONSIBILITY: ABAG; BAAPCD

START AND COMPLETION DATE: Month 5 to month 9

INPUT: a.10 - Inventory appropriate guidelines and standards applicable to impact assessment - An examination of environmental guidelines and standards will be made to inventory relevant evaluation criteria. This task will be basically a literature review.

a.20 - Review local and regional general plans for air quality implications - A review will be made of local and regional general plan documents for their air quality implications.

a.30 - Ensure consideration of all relevant evaluation criteria - This task is to "fill the gap" or provide additional evaluation criteria not covered in tasks a.10 and a.20. Included might be health and welfare, economic, political, or other environmental factors.

MAJOR PRODUCTS AND EVENTS: None anticipated - The results of these tasks will be input directly to the impact assessment task. Any documentation deemed necessary will be provided in task A.90 - impact assessment documentation.

COORDINATION REQUIREMENTS: With the BAAPCD to review the air quality implications of general plans

BUDGET: \$15,000 (additional resources included in task on assessment and evaluation)

TASK: F.00 - Plan formulation

PURPOSE: To develop a plan (i.e., the Air Quality Maintenance Plan) based upon the technical analyses in the preceding task

RESPONSIBILITY: ABAG; BAAPCD; MTC; local governments

START AND COMPLETION DATE: Month 11 to month 15

INPUT: F.10 - Evaluate and recommend a control strategy - Based upon the impact assessment tasks, prepare a recommended control strategy. Consider political, institutional constraints and environmental trade-offs which must be made.

F.20 - Development of regional AQMP policy - Based on a careful consideration of the alternatives analyzed, formulate a regional AQMP policy. This policy should consider other management plans developed and be consistent with water quality and solid waste management objectives.

F.30 - Development of local guidelines for AQMP adoption - The purpose of developing local guidelines for AQMP adoption is to assist local governments in "adopting" the plan. Development of these guidelines will require general adoption procedures for institutions which are to play major roles in implementing the AQMP. Included in the guidelines will be detailed procedures for securing "assurances" from each implementing agency that it will carry out its responsibilities as indicated in the plan.

MAJOR PRODUCTS AND EVENTS:

F.90 - Plan formulation documentation

F.91 - Document results of task F.10; prepare an issue paper, "Development of a Regional Air Quality Strategy"

F.92 - Document results of task F.00; prepare technical report, "Technical Support Document - Bay Area AQMP"

COORDINATION REQUIREMENTS: ABAG, BAAPCD, MTC; local governments and other interested groups

BUDGET: \$100,000 (additional resources included in tasks on assessment and evaluation; institutional/financial analysis; plan integration and administration)

TASK: I.00 - Institutionalization of the Air Quality Maintenance Plan

PURPOSE: To evaluate and develop institutional arrangements for implementation, monitoring, and enforcement of the AQMP; also, to develop procedures to ensure a continuous AQMP planning process

RESPONSIBILITY: ABAG; BAAPCD; MTC; local governments

START AND COMPLETION DATE: Month 7 to month 16

INPUT: I.10 - Evaluation of institutional arrangements for AQMP implementation - The purpose of this task is to evaluate alternative institutional arrangements for AQMP implementation in order to develop appropriate institutional arrangements for AQMP implementation. This task will involve evaluating the impacts of the alternative institutional arrangements.

I.11 - Review most probable classes of control strategies for implementation - This review task will involve the examination of "attractive" control strategies from task F.10. Among the criteria to be used will be the following: existence of (or need for adoption of) enforceable rules and regulations that implement the strategy; administrative procedures to be used in the implementation of each strategy; status of legal authority to implement the measure; and enforcement methods for each measure, including but not limited to, procedures for monitoring compliance with each of the measures. In addition, the financial requirements for their implementation will also be analyzed.

I.12 - Review existing governmental responsibilities, mandates, and legislative authority for implementation of potential controls - Agencies to be considered in this review will be identified based on their potential for an implementation role. Using the list of potential controls from task F.10, a determination of agency authority to implement these measures will be made. This determination will be based on such factors as regulatory and financial capabilities of each agency. The review will include the identification

of the responsibilities, mandates and legislative authority of each agency.

I.13 - Evaluate alternative institutional arrangements for AQMP implementation, including new arrangements requiring additional legislation if appropriate - Based upon the information from tasks I.11 and I.12, alternative institutional arrangements for AQMP implementation will be developed and evaluated. The alternatives may include new arrangements which require additional legislation. The evaluation criteria for the institutional arrangements will include, but not be limited to: Implementation authority; ability to integrate air pollution control objectives and other state and local activities affecting air quality; intergovernmental and inter-agency coordination and consultation; effective consultation with concerned interest groups, including the general public; and procedures for resolution of conflicts among participating institutions which might otherwise impede implementation. Where new legislation would be required for a particular alternative, an evaluation of the necessary local, State, and/or federal legislation and its adoption process must be made.

I.14 - Assess impacts of alternative institutional arrangements for AQMP implementation - This task requires the assessment of the alternative institutional arrangements of I.13. The factors to be considered in this assessment are such things as cost -- both direct and indirect; equity concerns; administrative requirements; legal issues; and State/local relationships.

I.15 - Recommend an institutional arrangement for AQMP implementation - The selection of a recommended institutional arrangement for AQMP implementation will require consideration of alternatives by the EMTF and the public. To solicit and incorporate public comments, public workshops, meetings and conferences will be held. Comments received will serve as input to any recommended institutional arrangement.

- I.20 - AQMP implementation program - The purpose of this task is to identify agencies responsible for implementation of the AQMP and resources available for implementation. It is anticipated a number of agencies may be involved depending on the variety of management strategies recommended. A major thrust of the implementation program will be the establishment of a continuing planning process.
- I.22 - Delineate agency roles, resources and responsibilities -- division of labor - This task requires the identification of the agency to be designated by the Governor as primarily responsible for implementation, as well as the identification of those agencies which have other responsibilities in the implementation program. The responsibilities of each agency must be defined and assurances from each agency that it will implement its responsibilities indicated in the plan. The description of resources should include 1) identification of agency resources available to implement the plan; 2) specification of additional resources required (if any); 3) written assurances from the Governor or local government chief executive that the agency will actively seek additional resources needed to implement the plan.
- I.22 - Develop an effective and continuous enforcement and monitoring program component to plan implementation - The development of a continuing planning process will include governmental administrative functions capable of maintaining the application of air pollution control measures. This task will include the identification of an agency with the authority to monitor the implementation of the plan. This program component shall include: an inventory of agency plans and actions that have significant air quality effects; mechanisms to use and continually refine the working relationships among agencies that were developed during plan preparation; and a public participation program to monitor progress and facilitate enforcement through encouraging public effort in reporting violations.
- I.30 - Public review of recommended plan - The purpose of public participation in reviewing the recommended plan is to receive and consider comments from the public, special interest groups and public/private institutions.

The role of the public institutions and special interest groups will be particularly important in plan adoption. Another objective of public participation in reviewing the recommended plan is to develop commitment concerning the final plan among elected officials, planners and the various publics.

I.31 - Environmental Management Task Force review and recommendation - During their review, the EMTF will be made aware of the public comments and opinions which are being received as part of task I.32. In addition, presentations that highlight the ramifications of the plan will be made.

Along with the major role the EMTF plays in the recommendation of the plan to the ABAG Executive Board, their recommendation will be structured in order to develop agreements and proposals for legislation.

I.32 - Interested agency/public review and recommendations - Various public participation methods will be used to identify public comments on the recommended plan, such as public meetings and public hearings. Emphasis on other methods, for example, public information through the news media, publications and speeches, will be stressed as well.

MAJOR PRODUCTS AND EVENTS:

I.90 - AQMP institutionalization documentation

I.91 - Document results of task I.10; prepare issue paper, "Institutional Arrangements for Air Pollution Control"

I.92 - Document results of tasks I.10 - I.20; prepare technical report, "An Evaluation of Alternative Institutional Arrangements for Implementing an AQMP"

COORDINATION REQUIREMENTS: ABAG, BAAPCD, MTC; local governments and other interested groups

BUDGET: \$50,000

TASK: L.00-Plan adoption

PURPOSE: To arrange for and participate in the Air Quality Maintenance Plan adoption process

RESPONSIBILITY: ABAG; BAAPCD; MTC; local governments

START AND COMPLETION DATE: Month 19 to month 24

INPUT: L.10 - Plan dissemination - The purpose of this task is to aid the continuing public participation program during the implementation stage of the plan.

L.11 - Organize efforts for extensive plan dissemination throughout region - This task will require the development of a strategy for plan dissemination throughout the region.

L.12 - Implement efforts of task L.11 - Publications and resource personnel will be provided to disseminate the AQMP throughout the region and provide background information as required.

L.20 - Local and regional adoption - The purpose of this task is to have the AQMP adopted by local and regional governments and to ensure their participation in the continuing planning process.

L.21 - Assist local governments in understanding plan and adoption - This task will require meetings with local governments in support of their efforts to adopt the plan. Support for plan adoption may require resource personnel for speeches and provision of publications for dissemination to local government officials.

L.22 - Assist regional governments in understanding plan and its adoption - This task will require meetings with regional governments in support of their efforts to adopt the plan. Support for plan adoption may require resource personnel for speeches and provision of publications for dissemination to regional government officials.

L.23 - Establish mechanisms for ongoing assistance to local and regional governments for continuing planning process - This task involves development

of procedures or mechanisms to ensure participation of local and regional governments in the continuing planning process. Procedures may entail ongoing assistance to local and regional governments or continuation of the inter-agency working relationships established during plan preparation.

MAJOR PRODUCTS AND EVENTS:

L.90 - Plan adoption documentation

L.91 - Prepare documentation for entire study and final report, "San Francisco Bay Area Air Quality Maintenance Plan"

COORDINATION REQUIREMENTS: All affected governmental entities

BUDGET: \$20,000

Municipal Wastewater Facilities

A major product required in Section 208 is a description of future municipal waste treatment system needs. Specific requirements include: identification of municipal wastewater collection and treatment system need for at least a 20-year period and an analysis of alternative waste treatment systems; a demonstration that land is available for waste treatment facilities and land treatment and disposal systems; projections of total capital funding required for construction; and a program to provide the necessary financial arrangements for the development of such systems (EPA, 1975). Other requirements include the identification of waste load reductions needed to attain and maintain standards and effluent limitations, population to be served, and the results of planning funded through Section 201 grants (EPA, 1975).

Municipal wastewater facilities include flows from domestic, commercial, and some industrial sources. In most systems, hydraulic loads increase during wet weather because of infiltration and inflow into collection systems, which in turn cause overflows, bypassing, and a reduced level of treatment.

Pursuant to the Federal Water Pollution Control Act Amendments of 1972, municipal facilities are required to provide at least secondary treatment by 1977 and best practicable treatment (as yet undefined) by 1983. Planning has already been undertaken on both the national and regional levels to meet these goals.

During the past ten years, more than \$6 million has been spent on water quality management planning in the Bay Area (Regional Water Quality Control Board, 1976). Most of this planning has been for municipal wastewater facilities either on the conceptual, basin-wide level (303 planning) or on a more subregional level (201 planning). As a result, most significant near-term water quality planning decisions regarding municipal wastewater facilities have already been made. The State Water Resources Control Board, in adopting the Basin Plan for the Bay Basin, accepted the statement that "This basin plan, in conjunction with the facilities planning program under Section 201 of PL92-500, generally provides an adequate planning base for the control of municipal and industrial waste discharges (point-sources)" (SWRCB, 1975).

Currently, over fifty projects for municipal wastewater facilities, with estimated construction costs of between \$1 and \$2 billion are in various stages of planning, design, and construction. Planning is either completed or nearing completion in all subregions of the basin (with the exception of the Marin-Sonoma area, where facilities planning is underway). All projects for municipal wastewater facilities

have undergone or will undergo review by state and federal agencies, including the EPA, through standard A-95 and EIS/EIR procedures. Further review of past planning decisions could delay construction of needed wastewater facilities.

To comply with the Section 208 requirements for a municipal wastewater facilities management plan, some additional planning is needed. Most of this planning relates either to long-term issues or to issues where data are insufficient. Consideration of these issues listed below, will not be a review or re-examination of decisions that have already been made.

- o The compatibility of the latest land use and population projections with the long-term capacity and sizing of wastewater facilities must be reviewed. Present facility sizing may not reflect the latest demographic and economic projections. In addition, many facility plans are not for the required 20-year period specified in the 208 guidelines.
- o Long-range facility planning has not, in many cases, considered the input of other waste sources and control measures upon municipal wastewater facility design. The conclusions of other major management plans in the 208 study, such as surface runoff and air quality maintenance, could have impacts upon future facility planning.
- o Primary and secondary environmental, economic, and social impacts, especially air quality impacts of facility construction programs, have never been adequately addressed in regional planning.

Consideration of these issues in the 208 study should not delay on-going projects; it may, in fact, provide data for making more cost-effective decisions.

The products of the Municipal Wastewater Facilities Management Plan will include:

- o a list and summary of data on existing and planned facilities; the data would be used to compile the required 20-year project list for municipal facilities
- o an identification and analysis of the major primary and secondary environmental impacts of the proposed planning program
- o an identification and analysis of service areas where:
 - 1) growth is expected and planning has been adequate;
 - 2) growth projections developed in the 208 study are not compatible with municipal wastewater facility planning;
 - 3) according to model studies or other management plans and special studies, treatment is inadequate;

and 4) institutional, management, staffing, financial, economic, political, or other implementation-related problems could make it difficult to meet schedules for facility construction.

Items listed above for which additional planning is needed would be identified and would be included in the continuing planning process. Because of limited time and funds, solution of all inadequacies may have to be deferred until after the initial planning period.

References

U.S. Environmental Protection Agency. November 28, 1975.
Preparation of Water Quality Management Plans. Code of
Federal Regulations, Vol. 40, No. 230, Part 131.

California Regional Water Quality Control Board, San Francisco Bay Region. March 23, 1976. Personal Communication to the Environmental Management Task Force.

California State Water Resources Control Board, 1975.
Water Quality Control Plan Report, San Francisco
Bay Basin (2).

TASK: Comment on 201 Facilities in EIR/EIS process
(based on current ABAG policy)

PURPOSE: To review and comment on existing on-going planning for 201 facilities to maintain contact between 201 planning and 208 activities

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 9

INPUT: All EIR/EIS documents on current 201 planning, plans, and policies of local agencies; later input from PLUM/Series 3 task outputs; task on assessment/evaluation and others

MAJOR PRODUCTS AND EVENTS: Comments on environmental issues raised in the EIR/EIS to be produced through ABAG's A-95 process; periodic progress reports and analyses of on-going 201 planning for use in other 208 work tasks; summaries of 208 work, made available for local 201 planning

METHOD: Environmental documents and project reports will be reviewed to determine significant environmental issues and to maintain a regional tracking system on projects. ABAG representatives will attend EIR/EIS and public hearings and policy and technical group meetings of local agencies. Local agency staffs will be contacted to clarify issues and to inform them of progress and interim findings of 208 work. Significant issues in 208 work tasks will be analyzed in the program.

COORDINATION: The Regional Board, the State Water Resources Control Board, and EPA staffs; local dischargers and local government agencies; tasks on population and land use and assessment/evaluation

BUDGET: \$5,500

TASK: Compile and update current 201 facilities plans

PURPOSE: To develop in-house familiarity with context and status of 201 plans in order to provide information to other Environmental Management Plan tasks

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 24

INPUT: 201 plans and EIR/EIS documents; BASSA Project Tracking Reports on 201 facilities; regional and state board project lists; tasks on maintaining contact and commenting on 201 facilities

MAJOR PRODUCTS AND EVENTS:

- o a monitoring or tracking report capable of easy updating, including a list of existing and currently planned 201 projects in the region in a tabular format with the name of the agency, a project description, costs, capacity, dry weather flow, wet weather flow, industrial and commercial flows, per capita flow, service area, population served, date of concept approval, dates of public hearings, dates of report submittals, schedule for completion, status, and significant issues
- o a written description of existing or proposed treatment, including an estimate of effluent water quality and quantity for both normal and wet weather conditions, staging schedules, discharge locations, analyses of existing capacity and uncommitted and committed capacity for dry and wet weather, and lists of industrial, commercial, and domestic use
- o an update of 1970 USGS map of municipal discharger service areas and plant and outfall locations

METHOD: 201 project reports and supporting data; and BASSA project tracking reports will be reviewed; contact will be made with local agency staffs and consultants. ABAG will attend local agency meetings on 201 projects. The information system on 201 facilities should be set up during Month 0 to month 6 and should be updated periodically.

COORDINATION: BASSA, the Regional and State Boards, EPA, USGS, local agencies; tasks on population and land use, local development policies, water quality models and data management.

BUDGET: \$6,500

TASK: Describe data needs

PURPOSE: To provide early listing of new water quality data on 201 programs, which needs to be collected or compiled into a usable form

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Existing NPDES self-monitoring program and influent/effluent data from dischargers, including project reports and infiltration/inflow analyses; previous data collected by nondischargers such as USGS, USBR, DWR, etc., in Bay and ocean

MAJOR PRODUCTS AND EVENTS: Display (perhaps on map or tabular form) of type and location of data now available; specific recommendations on additional data to be collected or compiled in usable forms in order to determine water quality effects in later tasks; recommendation on data format and management system

METHOD: RWQCB and other agency files and data libraries will be reviewed to determine the extent, type, and usefulness of existing data. A map of the region will be developed showing where data has been or will be collected and type (differentiate between wet and dry weather seasons).

COORDINATION: RWQCB, USGS, USBR, DWR, and local dischargers; tasks on analytical procedures and data management

BUDGET: \$1,500

TASK: Develop procedures for calculating future untreated wastewater quality and quantity

PURPOSE: To develop procedures to arrive at coefficients for relating land use, service area, density, population, employment, and water use to projections for untreated wastewater quality and quantity in wet and dry weather for each service area in the region

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 2 to month 6

INPUT: Data from technical literature, project reports, EIR/EIS documents, local policies and general plans, census figures, water supply and usage figures; tasks on population, land use, employment, and transportation

MAJOR PRODUCTS AND EVENTS: Per capita quantity and quality coefficients and unit area quantity and quality coefficients for flows and constituents for each service area, including variations over time, in both wet weather and dry weather

METHOD: Existing documents and technical reports will be reviewed to determine per capita and per area wastewater generation. Approximations will be made where existing data is nonexistent or inadequate. Pretreatment standards and ordinances on nondiscrete industrial flows will be reviewed.

COORDINATION: With PLUM/Series 3 to assure compatibility and utility of data generated; tasks on water quality analytical procedures and industrial management

BUDGET: \$3,000

TASK: Project future quality and quantity of wastewater

PURPOSE: Develop projections for treated and untreated wet and dry weather wastewater quality and quantity for each service area

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 8

INPUT: Output from previous task (coefficients); data from PLUM/Series 3 and local development policies; future treatment and performance levels of 201 facilities based on current planning and reasonable upgrading (as implied by task on assessment of water quality effects of existing facilities); industrial management data

MAJOR PRODUCTS AND EVENTS: Wet and dry weather flow projections, projections of treated and untreated wet and dry weather wastewater quality and quantity for each service area

METHOD: PLUM/Series 3 data on population and land use will be combined with coefficients developed in the previous task to determine untreated wastewater quality and quantity. Information in 201 facilities plans will be used to determine treatment levels and effluent quality and quantity.

COORDINATION: PLUM/Series 3; tasks on local development policy; industrial management, and water quality analytical procedures

BUDGET: \$6,500

TASK: Assess water quality effects of planned facilities on Bay and ocean

PURPOSE: To analyze water quality model outputs to determine future water quality conditions based on discharges from planned facilities for both wet and dry weather

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 10

INPUT: Data on future quality and quantity of wastewater from municipal facilities; data on discrete industrial discharges, nonpoint sources and runoff; tasks on collecting and updating of current 201 facilities planning and water quality analytical procedures; information to be developed by the RWQCB on wasteload allocation of "water quality limited segments"

MAJOR PRODUCTS AND EVENTS: Wet weather and dry weather estimates of water quality conditions for selected parameters in the Bay and ocean; documentation of areas where water quality objectives are not met or are in danger of not being met; relationship of timing and staging of planned facilities or other alternative facilities to effects on water quality; identification of significant point sources and those not meeting objectives; determination of influence of point sources in relation to nonpoint sources and runoff

METHOD: This task will be an analysis of water quality model outputs. An analysis will be made of past model runs by local dischargers in 201 planning and by a BASSA consultant to determine gross effects, critical locations, and future model runs. Effects of large changes of Delta outflow will not be analyzed in this task.

COORDINATION: Tasks on water quality models, nonpoint sources, industrial discharges, surface runoff; RWQCB

BUDGET: \$13,000

TASK: Identify needed facilities

PURPOSE: To identify facilities or service areas where planning has been inadequate to accommodate projected wastewater flows or to meet water quality objectives in the Bay or ocean

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 7 to month 10

INPUT: Tasks on collection and updating of current 201 facilities plans, assessment of water quality effects of currently planned facilities, projections of future quality and quantity of wastewaters and future effects of dischargers on Bay and ocean, water quality analytical procedures, industrial discharges, nonpoint sources, and surface runoff

MAJOR PRODUCTS: A tentative 20-year project list by service areas for facilities that must be constructed, expanded or upgraded; a determination of unused or available capacity of facilities; a schedule of financial and institutional arrangements for completing the construction, expansion, or upgrading

METHOD: Water quality model outputs will be compared to trial water quality objectives. The capacity and treatment levels of present and planned facilities will be compared with projected flows. Service areas will be identified where:

- growth will occur and for which no adequate 201 planning has been made (including septic tank areas)
- growth projections are not consistent with existing 201 planning
- treatment facilities are insufficient

Institutional, management, staffing, financial, economic, political, or other implementation-related problems that could make it difficult to meet facility construction schedules will be identified.

COORDINATION: Tasks on municipal facilities, water quality models, water quality objectives, industrial management, nonpoint sources, surface runoff, population and land use

BUDGET: \$8,500

TASK: Formulate and describe alternatives

PURPOSE: Formulate and describe alternative structural and nonstructural control measures for service areas that require construction, expansion, or upgrading of facilities

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 11

INPUT: Previous task on needed facilities; tasks on institutional/financial mechanisms and control measures

MAJOR PRODUCTS AND EVENTS: Matrix of alternative structural and nonstructural control measures for service areas identified in the previous task; notification via A-95 process of need for additional planning and control measures

METHOD: Previous work on control measures will be reviewed. Responses will be made to 201 projects. Contact will be made with regulatory and planning agencies and with local agencies.

COORDINATION: Tasks on assessment/evaluation, financial/institutional mechanisms; local development policies; comments on 201 facilities under A-95

BUDGET: \$13,000

TASK: Assess/evaluate

PURPOSE: To assess and evaluate individually and in combination the alternatives formulated in the preceding task

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Alternatives developed in the previous task to be an input to the assessment/evaluation procedures developed elsewhere

MAJOR PRODUCTS AND EVENTS: Specific impacts and an evaluation/assessment of structural control measures to complete 201 planning in the region

METHOD: The assessment/evaluation procedures developed by ABAG elsewhere will be the framework by which the alternative structural and nonstructural control measures will be assessed.

COORDINATION: Some contact with local agencies to determine views on costs and implementability of control measures

BUDGET: \$10,000

TASK: Describe continuing planning process

PURPOSE: To describe the continuing planning process with respect to management of municipal wastewater facilities

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Tasks on municipal wastewater facilities, water quality models, population and land use, industrial discharges, assessment/evaluation, and institutional/financial mechanisms

MAJOR PRODUCTS AND EVENTS: A set of recommendations that can be developed into an action program for the continuing planning process to insure that proper planning, construction, operation, and maintenance of needed municipal wastewater facilities continue after the initial planning period. Control measures, priorities, institutional and financial mechanisms, and unresolved conflicts will be considered in the continuing planning process

METHOD: Outputs from previous and concurrent tasks will indicate which issues can be resolved during the initial planning period. The continuing planning process will accommodate the remaining issues.

COORDINATION REQUIREMENTS: Tasks on water quality models, population and land use, industrial discharges, assessment/evaluation, institutional/financial mechanisms, continuing planning process, the Environmental Management Task Force

BUDGET: \$3,500

TASK: Develop institutional/financial mechanisms

PURPOSE: To describe institutional/financial mechanisms necessary for implementing alternatives and to assess their institutional and financial feasibility

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 13

INPUT: Previous tasks in this management plan; institutional/financial supporting tasks

MAJOR PRODUCTS AND EVENTS: The proposed institutional arrangements and necessary financing mechanisms for implementing previously described control measures

METHOD: Control measures will be proposed in this management plan. Previous institutional/financial work will result in technical memoranda describing the ongoing institutional and financial system and options for implementing control measures. Based on these previous efforts, ABAG will develop criteria to select alternative institutional arrangements and financing methods from the list of available options.

COORDINATION: Tasks on assessment/evaluation and institutional/financial mechanisms

BUDGET: \$2,500

TASK: Prepare report

PURPOSE: To document the management plan for municipal dischargers, including control measures, institutional/financial mechanisms, and the continuing planning process

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: All previous tasks on municipal facilities

MAJOR PRODUCTS AND EVENTS:

- o a 20-year construction priority project list for municipal facilities including wet weather control projects. (List will include facility description, costs, scheduling, service area, capacity, discharge location, staging and degree of treatment; regulatory program for control of discharges in each service area, and establishment of mechanisms for mitigating control measures.)
- o identification and analysis of the major primary and secondary environmental impacts of the proposed planning program noted above
- o identification and analysis for service areas for which: 1) growth is expected and planning is inadequate; 2) growth projections developed in the 208 study are not compatible with municipal wastewater facility planning; 3) treatment may not be sufficient based on model studies or on an analysis of other management plans and special studies such as nonpoint sources, surface runoff, biological studies and Delta outflow; or 4) institutional, management, staffing, financial, economic, political, or other implementation related issues could result in difficulty in meeting schedules for facility construction

Items in the above group for which additional planning is needed would be addressed as part of the continuing planning process. Solutions for all inadequacies may have to be deferred until after the initial planning period.

METHOD: All previous tasks on municipal facilities will be reviewed and the findings and recommendations incorporated. There will be input from the public and the Environmental Management Task Force.

COORDINATION REQUIREMENTS: Tasks on institutional/financial mechanisms; the public and the Environmental Management Task Force

BUDGET: \$3,500

TASK: Assist in regional compilation, adjustment and assessment

PURPOSE: To assist in regional compilation, adjustment, and assessment of the management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 20

INPUT: All previous tasks

MAJOR PRODUCTS AND EVENTS: An integrated environmental management plan

METHOD: Information and assistance will be provided to the regional assessment and plan integration team.

COORDINATION REQUIREMENTS: Tasks on evaluation and assessment and integration of management plans

BUDGET: \$13,000

Other Nonpoint Sources

Federal mandate calls for the development of a process to deal with nonpoint sources of pollution, especially those from agriculture, forestry, and mine-related and construction activities. Pollutants from nonpoint sources enter water bodies over widespread areas, as they are often not collected in sanitary sewers or controlled by municipal and industrial facilities. Nonpoint source pollutants in the Bay Area are discharged principally through surface runoff; smaller amounts are from septic tanks, dredging operations, construction erosion, vessel discharges, and oil spills. Waste loads are also transported by the Bay system from agricultural activities in the Central Valley by the San Joaquin and Sacramento Rivers (State Water Resources Control Board, 1975).

The impact of pollutants from nonpoint sources in the Bay region has not been fully assessed. This management plan will examine the nonpoint sources of pollution not covered in other management plans and will proceed after an analysis of which nonpoint sources are regional problems. In general, the two-year product of this management plan will be less definitive, certainly in terms of structure, than the products of other management plans. The following is a brief description of some nonpoint sources to be examined.

Surface runoff problems in rural areas are generally related to agricultural operations such as animal confinement and irrigation. Storm runoff passes through feedlots and dairy corrals and contributes manure loads to surface streams tributary to the Bay. Stockpiles of manure may also add to the problem. In addition, washing water from animal confinements and manure storage areas may drain to impervious soil and degrade underlying groundwaters. Percolating irrigation water may also affect groundwater quality; the concentration of soluble salts increases after part of the water evaporates or is consumed by crops. Since 1973 the Regional Water Quality Control Board has been delegated the authority to issue discharge requirements for certain agricultural operations. (Agricultural runoff will also be examined under the surface runoff management plan even though the primary emphasis of that plan will be on urban runoff.)

Other nonpoint sources of pollutants are individual wastewater disposal systems. Failing septic tank systems in some communities have caused water quality and public health problems. For example, septic tank effluents into Bear Gulch and Lake Hennessey Watershed threaten water supplies (SWRCB, 1975). At present, there is no regional policy for the use or replacement of individual wastewater disposal systems.

Water quality problems resulting from dredging and dredge-spoil disposal in estuarine and nearshore marine waters include the

temporary destruction of local benthic organisms, turbidity, decreased dissolved oxygen concentrations, and increased toxicity. As stated in the Basin Plan, dredging activity must be studied further before formal requirements are imposed to effect adequate and reasonable control. Issues related to dredging will be examined under the section on special studies and the results will be incorporated into this management plan.

Construction and related activities may disturb the soil or otherwise increase its susceptibility to erosion and can impair water quality by increasing turbidity and sediment in streams. Currently, however, there are no regional policies for controlling erosion from construction activities.

Despite many years of concern and effort, houseboat problems in the region are still unresolved; for example, raw sewage is still discharged from houseboats into Richardson Bay. In addition, there are no facilities for disposing of waste from pleasure craft and commercial vessels in compliance with existing regulations.

References

State Water Resources Control Board. 1975. Water Quality Control Plan Report, San Francisco Bay Basin (2).

TASK: Assess significance of other nonpoint sources

PURPOSE: To enumerate all nonpoint sources that could be considered in this management plan and to conduct technical evaluations of their significance (Control of these types of wastes is sometimes politically sensitive on the local level. This analysis should consider the seriousness of these problems and it should be determined whether significant contributions to their solution can be made in this environmental management program.)

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 3

INPUT: The Basin Plan and local work on nonpoint sources

MAJOR PRODUCTS AND EVENTS: A description of nonpoint sources that could be considered in the management plan, including:
1) nature of the nonpoint source, 2) type of problems caused by the source, and 3) preliminary evaluation of the significance of the problems (including identification of affected waters by segment or other appropriate planning area)

METHOD: Nonpoint sources of wastes other than urban runoff will be identified. These include agriculture, silviculture, and mine-related sources, individual wastewater disposal systems such as septic tanks, wastes from recreational areas, dredging operations, construction erosion, vessel discharges, oil spills, saltwater intrusion, and sources related to hydrographic modification. Problems caused by these nonpoint sources of wastes will be examined and their significance will be evaluated.

COORDINATION REQUIREMENTS: Tasks on surface runoff and water quality modeling tasks (to determine significance of problems); investigation to be coordinated with the RWQCB; local agencies

BUDGET: \$9,000

TASK: Describe data needs

PURPOSE: To produce an early description of needs for the collection and analysis of new data

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Products of preceding task

MAJOR PRODUCTS AND EVENTS: A list of data needs for each significant source identified in the first task, including identification of communities using septic tanks, evaluation of county septic tank ordinances, information on the relationship of septic tanks to secondary environmental impacts, information on existing sanitation facilities in recreational areas, and estimated quantity of vessel wastes

METHOD: Information on problems related to nonpoint sources will be reviewed and evaluated. Discussions concerning data needs will be held with counties.

COORDINATION REQUIREMENTS: Tasks on the significance of non-point sources

BUDGET: \$1,500

TASK: Document significant problems (including causes)

PURPOSE: To describe in detail the nonpoint sources not considered elsewhere that are appropriate for the development of management plans in this program

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 3 to month 6

INPUT: Products of the first tasks

MAJOR PRODUCTS AND EVENTS: A list of significant problems related to nonpoint sources that should be considered in this management plan (e.g., failing septic tank systems and the effect their use or replacement will have on growth of suburban and rural areas in the region; construction and associated activities that impair local water quality by disturbing the soil or otherwise increasing susceptibility to erosion)

METHOD: This task will be based on the task on the significance of nonpoint sources.

COORDINATION REQUIREMENTS: Tasks on study management and administration and local problem identification

BUDGET: \$3,000

TASK: Project future problems

PURPOSE: To project the future problems developed in the preceding task

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 9

INPUT: Employment, land use, and population projections and preceding task on significant problems related to nonpoint sources

MAJOR PRODUCTS AND EVENTS: A description of the extent and cause of the future problems related to each of the nonpoint sources.

METHOD: Existing problems related to nonpoint sources will be reviewed and trends based on employment, land use, and population projections will be estimated.

COORDINATION REQUIREMENTS: Tasks on employment, land use, and population projections and documentation of existing problems

BUDGET: \$6,000

TASK: Formulate/describe alternatives

PURPOSE: To formulate and describe alternative control measures for regionally significant nonpoint sources

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 9 to month 11

INPUT: Existing and future problems related to nonpoint sources

MAJOR PRODUCTS AND EVENTS: A description of alternative control measures for the problems, including specific guidance to counties for control of septic tanks and erosion (The description should be consistent with formats outlined in the tasks on assessment procedures.)

METHOD: Past work of regional and local agencies on control of nonpoint sources will be analyzed. Structural and nonstructural solutions, such as construction of sanitation facilities at recreation sites, collection systems for vessel wastes, and regional policies on septic tanks and control of erosion caused by construction activities will be formulated. The description of control measures for each significant nonpoint source may include: 1) an assessment of control measures applied thus far; 2) the period of time required to achieve desired control; 3) proposed regulatory programs; 4) management agencies; and 5) costs by agency and activity to achieve desired controls (by five-year increments).

COORDINATION REQUIREMENTS: Tasks on existing and future problems related to nonpoint sources

BUDGET: \$9,000

TASK: Assess/evaluate

PURPOSE: To assess and evaluate the alternative control measures formulated in the preceding task

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Control measures and assessment procedures developed by ABAG

MAJOR PRODUCTS AND EVENTS: Environmental, social, and economic impacts of the control measures

METHOD: Control measures will be assessed and evaluated based on established criteria and procedures.

COORDINATION REQUIREMENTS: Coordination with aspects of the assessment to be carried out at the regional level; local technical and public review required

BUDGET: \$6,000

TASK: Develop institutional/financial mechanisms

PURPOSE: To develop institutional/financial mechanisms for implementing the best alternative control measure or group of alternative control measures

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 9 to month 13

INPUT: Previous tasks in this management plan; previous and ongoing institutional/financial supporting tasks

MAJOR PRODUCTS AND EVENTS: Proposed institutional arrangement and financing mechanisms for implementing control measures previously described in this management plan

METHOD: The control measures for this plan will be a subset of the candidate control measures developed elsewhere in the Environmental Management Plan. The control measures for this plan will be combined with institutional/financial work, including the technical memorandum describing the present institutional/financial mechanisms and a second technical memorandum giving details of institutional/financial options. ABAG will develop criteria for evaluating and selecting alternative sets of institutional/financial mechanisms from the list of available options .

COORDINATION REQUIREMENTS: Task on institutional/financial background information

BUDGET: \$4,000

TASK: Describe continuing planning process

PURPOSE: To describe elements of the continuing planning process pertaining to other nonpoint sources

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Tasks on other nonpoint sources, population and land use, assessment/evaluation, and institutional/financial mechanisms

MAJOR PRODUCTS AND EVENTS: A description of the continuing planning process elements relating to other nonpoint sources, particularly those problems that remain unsolved after the first round of planning

METHOD: Prior work in this management plan will indicate issues that cannot be resolved in the initial planning period. This task will concentrate on developing a process to resolve such issues.

COORDINATION REQUIREMENTS: Tasks on population and land use, assessment/evaluation, institutional/financial mechanisms, and the continuing planning process, the Environmental Management Task Force

BUDGET: \$2,500

TASK: Prepare report

PURPOSE: To document the environmental management plan for other nonpoint sources

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: Tasks on assessment/evaluation and the continuing planning process

MAJOR PRODUCTS AND EVENTS: A management plan for nonpoint sources that will include the control measures and the institutional/financial and other actions necessary to implement them; description of elements of the continuing planning process particular to this management plan

METHOD: Products of preceding tasks will be compiled.

COORDINATION REQUIREMENTS: Tasks on assessment/evaluation, the continuing planning process, and integration of management plans

BUDGET: \$3,000

TASK: Assist in regional compilation, adjustment and assessment

PURPOSE: To assist in regional compilation, adjustment, and assessment of the management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 20

INPUT: All previous tasks

MAJOR PRODUCTS AND EVENTS: An integrated environmental management plan

METHOD: Information and assistance will be provided to the regional assessment and plan integration team.

COORDINATION REQUIREMENTS: Tasks on evaluation and assessment and integration of management plans

BUDGET: \$4,000

Industrial Discharges

Industrial discharges are a significant cause of water quality degradation. Like municipal discharges, industrial discharges include solids, organics, and nutrients. They also include heat, acids, alkalis, heavy metals, oils and greases, and other chemicals and hence, are generally more toxic than municipal discharges that have been given primary or secondary treatment. (Hines, 1973). Industrial discharges can be grouped into two classes:

- o discrete, if discharged by industry directly to receiving waters after treatment, and
- o nondiscrete, if discharged to sewer collection systems, which then convey them with domestic wastewaters to publicly owned facilities for treatment and ultimate discharge.

Discharges of industrial wastes to receiving waters result in critical water quality problems. Discharges to sewerage systems cause treatment plant upsets and loss of efficiency (Damus, 1976). The Federal Water Pollution Control Act Amendments of 1972 address these problems by requiring NPDES permits that include deadlines for industries to provide particular treatment levels and pretreatment standards for wastes discharged into municipal systems. In addition, Section 208 of the law requires that treatment works be identified "to meet the anticipated municipal and industrial waste treatment needs of the area over a 20-year period." EPA guidelines (EPA, 1975) state that a 208 plan should include planning for industrial waste treatment systems. For example, the reduction in waste loads from industrial point sources required to maintain water quality standards and effluent limitations for at least a 20-year planning period should be considered. According to the EPA guidelines, alternatives considered for industrial dischargers connected to municipal systems should be reflected in the alternatives for the municipal waste treatment systems.

Under the Water Pollution Control Act Amendments of 1972, industrial dischargers have begun to change their discharge practices and improvements in water quality have been made. The National Commission on Water Quality concluded that the "best practicable control technology currently available" for industrial discharges is achievable and that industry as a whole will meet the 1977 goal of the Act earlier than publicly owned treatment works (NCWQ, 1975).

There are 120 discrete industrial discharge points in the Bay Area and hundreds of nondiscrete discharge points. Approximately 90 percent of mass emissions from discrete industrial discharges can be attributed to less than thirty dischargers. Most of the industrial dischargers in the region can be grouped into six categories:

- o food processing (and kindred industries)
- o paper processing (and allied industries)
- o chemical processing
- o petroleum refining
- o primary metals processing
- o fabricated metal processing

Industries are concentrated in three areas: Antioch-Pittsburg, an area near Richmond, and Newark-Fremont (SWRCB, 1975).

According to one estimate, in 1970 industrial flows in the region totaled about 500 mgd; about 350 mgd (70 percent) were discrete industrial discharges, and about 140 mgd were discharges to municipal systems (Lofting, 1972). These figures match the Basin Plan estimate of 315 mgd for discrete industrial discharges in 1970 (SWRCB, 1975).

In the Bay Area, industrial discharges have been declining and municipal discharges increasing. According to the Basin Plan estimate, in 1970 industrial flows amounted to 315 mgd (45 percent of the total); municipal flows amounted to 485 mgd (55 percent). In the year 2000, industrial flows are projected to be about 220 mgd (22 percent); municipal flows are projected to 780 mgd (78 percent). In addition to flows, BOD and toxic materials are also expected to decline (SWRCB, 1975).

These trends are due primarily to strong actions taken by regulatory agencies and to the realization by the industries that new processes, improved operations, recycling, and resource recovery are economically advantageous.

The Basin Plan contains no specific recommendations for consolidating industrial and municipal discharges. On the whole, industries have preferred not to join systems with municipal dischargers. The reasons for their reluctance are listed below (SWRCB, 1975):

- o State and federal requirements for industrial cost recovery (which eliminate or limit the use of public grant funds for the industrial parts of combined facilities) minimize the advantage of participation.
- o Deadlines for industrial treatment improvements have been more stringent and more vigorously enforced than the deadlines for municipal improvements. Industries have therefore preferred to act alone rather than join public agencies and be subjected to the delays of the facility grant programs.
- o New pretreatment requirements require industries to make

large capital expenditures regardless of whether they participate in joint collection-treatment systems.

- Program timing, control of capital costs, and the relationship between waste disposal and production also make independence preferable.

Several problems have been identified that will require additional planning. These are listed below:

- Higher industrial treatment levels will result in greater amounts of hazardous and toxic waste residuals. (See Solid Waste Management Plan).
- Limits of discharge from existing and potential industrial areas are needed to insure that industrial development can proceed without impairing water quality.
- Pretreatment requirements for nondiscrete industrial discharges that are now being considered by regulatory agencies could affect industrial operations and the operation and capacity of municipal treatment plants.

The work plan for industrial discharges will address these concerns, the requirements of Section 208, and the EPA guidelines. It also takes into account the improvements being made by industries and as a result of the regulatory actions of the Regional Water Quality Control Boards.

Initial outputs of the work will be data on locations of industries and projections of quality and quantity of liquid and solid waste in discrete and nondiscrete industries. This is because the monitoring requirements of NPDES permits for discrete discharges provide a data base for estimating effluent qualities and quantities. Thus, in developing this management plan, more effort will be spent on refining projections for nondiscrete industrial dischargers.

The data developed on projections will be useful in estimating the amount of hazardous waste from discrete and nondiscrete industrial sources. Data will also help in reviewing pretreatment requirements and systems for nondiscrete discharges, sewer discharge ordinances, and EPA toxic effluent limitations. NPDES permit conditions, EPA definitions of 1977 and 1983 treatment levels, and policies of the State and Regional Boards will be useful in refining the estimates.

Information on the degree of treatment for industries in relation to municipal discharges will be developed. Input from tasks on the special studies, especially heavy metals, Delta outflow, and the biological studies, will be incorporated. Projections of industrial flows and the effect of pretreatment of nondiscrete industrial discharges on municipal treatment plants will also be considered, as these will affect the capacity and treatment levels needed at municipal facilities.

References Cited

- California State Water Resources Control Board. 1975. Water Quality Control Plan Report, San Francisco Bay Basin (2).
- Darmus, Joe. East Bay Municipal Utility District. Personal Communication.
- Hines, W. G. 1973. A Review of Wastewater Problems and Waste-water Management Planning in the San Francisco Bay Region, California. U.S. Geological Survey.
- Lofting E.M., and G. Tchobanoglous. December 1972. San Francisco Bay-Delta Region Industrial Water Quality Study. U.S. Army Corps of Engineers, San Francisco District.
- National Commission on Water Quality. November 1975. Staff Draft Report.
- U.S. Environmental Protection Agency. November 28, 1975. Preparation of Water Quality Management Plans. CFR Vol 40, No. 230, Part 131.

TASK: Describe data needs

PURPOSE: To identify the data needs in relation to discrete and nondiscrete industrial discharges, including residual hazardous wastes

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Work plan technical literature, previous reports, RWQCB files, Class I site records, and Department of Health records

MAJOR PRODUCTS AND EVENTS: A list of additional data to be gathered on industrial discharges; a list of data to be analyzed

METHOD: Reports and literature will be read, and records of public agencies will be reviewed to determine the extent and usefulness of existing data.

COORDINATION REQUIREMENTS: Tasks on industrial management, data management, assessment/evaluation, and water quality modeling

BUDGET: \$2,500

TASK: Describe pretreatment requirements for nondiscrete industrial dischargers

PURPOSE: To collect and compile existing and proposed pretreatment requirements of local municipal dischargers, the Regional Water Quality Control Board, the State Water Resources Control Board, EPA and other groups (including the public)

RESPONSIBILITY: ABAG.

START AND COMPLETION DATE: Month 0 to month 4

INPUT: Copies of municipal ordinances and regulations, model ordinance prepared by California Water Pollution Control Association, guidelines of the Regional and State Boards, and EPA pretreatment regulations; public ideas on pretreatment

MAJOR PRODUCTS AND EVENTS: A list for each municipal discharger of the pretreatment requirements for each significant industrial category

METHOD: Items described under input above will be reviewed to determine numerical limits and prohibitions on various constituents.

COORDINATION REQUIREMENTS: Local dischargers, the Regional and State Boards, EPA, Bay Area Sewage Services Agency, Bay Area League of Industrial Associations; tasks on data management, municipal facilities, and hazardous waste; public input

BUDGET: \$2,500

TASK: Determine effect of pretreatment requirements on industrial operations and costs

PURPOSE: To translate industrial pretreatment requirements for nondiscrete industries into specific effects on industry in terms of systems required and costs of construction and operation

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 7

INPUT: Previous task on description of pretreatment requirements for nondiscrete industries; technical literature; EPA reports on economic impacts of treatment systems

MAJOR PRODUCTS AND EVENTS: List of candidate alternative systems to meet pretreatment requirements for each industrial category in each municipal service area; construction and operation costs for these systems; residual hazardous wastes and by-products produced; resources (chemicals, energy) required for these systems

METHOD: A literature search (including EPA documents), will be conducted to determine the technology available to meet requirements for each industrial type. Costs for each type pf industry will be developed based on unit costs in the literature. Residuals generated and resources used will be determined.

COORDINATION REQUIREMENTS: Tasks on description of pretreatment requirements for nondiscrete industries; and hazardous wastes

BUDGET: \$10,000

TASK: Assess and evaluate pretreatment requirements

PURPOSE: To assess significant economic and other impacts and the effectiveness of alternative pretreatment systems for non-discrete industrial discharges

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Tasks on description and effects of pretreatment requirements; output from PLUM/Series 3 on industrial development

MAJOR PRODUCTS AND EVENTS: Analysis of the economic and non-economic impact of pretreatment alternatives on industries, considering such items as product pricing, relocation, employment, costs to region, increases in hazardous wastes and water resource usage, and availability of reusable water

METHOD: A matrix of significant economic and non-economic impacts such as those described in the previous section on products will be developed. Dollar costs in each impact category by both industry and by municipal service area will be determined. Nondollar costs and benefits using assessment/evaluation techniques will be developed elsewhere. A summary assessment of dollar and nondollar effects, subdivided by industrial type and location will be prepared.

COORDINATION REQUIREMENTS: Previous tasks on pretreatment, population and land use, local policies, assessment/evaluation, hazardous wastes

BUDGET: \$8,000

TASK: Determine effect of pretreatment on water quality and 201 facilities.

PURPOSE: To project the effects of pretreatment on water quality facilities operations and to translate these into effects on receiving water quality

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 9

INPUT: Previous tasks on pretreatment, existing 201 facilities; data on quality of influent and effluent from existing treatment plants; tasks on population and land use

MAJOR PRODUCTS AND EVENTS: A comparison of influent or effluent under existing 201 facilities and under conditions of alternative pretreatment systems; analysis of differences in these quantities on plant operation; analysis of these differences translated into effluent water quality and receiving water effects (including impacts on flow and reclamation systems); analysis of the effect of allowing municipal plants rather than industries to treat some industrial wastes; analysis of anticipated requirements to reduce waste loads in five-year increments for a 20-year period in order to maintain water quality standards

METHOD: Data on existing and planned 201 facility influent and effluent without significant pretreatment will be obtained. Data on proposed loadings to plants with pretreatment will be developed and compared. Constituents critical to reclamation requirements will be related to pretreatment systems. The effects of existing and proposed water quality facilities on receiving waters will be reviewed to determine changes resulting from pretreatment.

COORDINATION REQUIREMENTS: Tasks on pretreatment, existing and planned 201 facilities, water quality effects of 201 facilities, population and land use, water supply, reclamation and conservation

BUDGET: \$9,500

TASK: Formulate and describe pretreatment requirements alternatives

PURPOSE: To formulate and describe pretreatment requirements for each industrial category and each service area in the region based on the previous analysis

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 12

INPUT: All previous tasks on pretreatment

MAJOR PRODUCTS AND EVENTS: Recommendations on specific pretreatment strategies for each industry type and each location that can be developed into control measures

METHOD: Information developed in previous tasks on economic and noneconomic impacts on industries and the region's economy, municipal treatment plant operation, Bay water quality, and water reclamation will be coordinated. Implementability and effectiveness of alternatives will be analyzed; conflicts and problems that may result will be determined.

COORDINATION REQUIREMENTS: Tasks on 201 facilities, implementation/financial mechanisms, control measures, population and land use, local development policies, public input

BUDGET: \$7,000

TASK: Describe existing discrete and nondiscrete industrial waste dischargers

PURPOSE: To identify size, type, and location of each discrete and nondiscrete industrial discharge and the quality and quantity of waste produced

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 4

INPUT: Basin Plan data; Regional Board NPDES permits; waste hauler reports

MAJOR PRODUCTS AND EVENTS: Map of industries showing location of outfall; table of data giving name, location, size, type of products, quality and quantity of process and nonprocess wastewater, amount of hazardous waste generated, and planned or existing capacity in terms of percentage of potential output

METHOD: A literature search will be conducted; NPDES permits, information in the Basin Plan, and waste haulers reports will be reviewed; unit coefficients, figures, and estimates of total amounts for items in the table will be developed.

COORDINATION REQUIREMENTS: Tasks on local policies, land use and population, and data needs

BUDGET: \$2,500

TASK: Identify future locations for industrial dischargers

PURPOSE: To identify areas where discrete industrial dischargers could be established in the future

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 7

INPUT: Local development policy; Series 3/PLUM outputs; industrial lands inventory

MAJOR PRODUCTS AND EVENTS: List of areas where industries may be located in the future; size and type of industries that may be located in those areas; staging of industrial development

METHOD: Development policies of local governmental agencies will be reviewed; business and industrial trade associations will be contacted; assessors maps will be reviewed to determine which lands are owned by industrial corporations; the potential for spills or emergencies will be assessed; availability of support systems for industry (land, water, labor, transportation) will be determined; the possibility of restrictions on land use due to air quality problems will be considered.

COORDINATION REQUIREMENTS: Public input, tasks on land use and employment and air quality, local development policies

BUDGET: \$4,000

TASK: Examine discharge limits for industrial facilities at each location or area

PURPOSE: To develop trial quality and quantity criteria for discrete industrial discharges in the region

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 7 to month 10

INPUT: Existing data on NPDES permits for industries; EPA effluent requirements on best available technology and best practicable technology; data on beneficial uses; tasks on trial water quality objectives and public attitudes

MAJOR PRODUCTS AND EVENTS: Recommended trial NPDES permits for industries based on type of industry and location

METHOD: NPDES permits for industries and EPA requirements for effluent limits will be analyzed. Data on the effect of other types of discharges such as nonpoint sources, surface runoff, and municipal sources in the area of proposed industries will be developed. Permit conditions will be related to water quality objectives and information on public attitudes will be obtained.

COORDINATION REQUIREMENTS: Tasks on water quality modeling, surface runoff, nonpoint sources, municipal wastes, air quality, public input

BUDGET: \$6,000

TASK: Assess/evaluate discharge limits and locations for discrete industries

PURPOSE: To assess and evaluate the trial NPDES permit conditions developed for industries in the previous task

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 13

INPUT: Previous tasks on discrete industries; assessment/evaluation tasks

MAJOR PRODUCTS AND EVENTS: Recommendations on the utility of trial permit conditions developed in the previous task; a summary of significant impacts resulting from discharge limits

METHOD: The assessment/evaluation procedures developed elsewhere in the work program will be used to test impacts on industries and the region as a whole. Economic and noneconomic impacts on relocation, product pricing, water quality and beneficial uses, local development policies, land use, and employment will be considered. The effects of hazardous wastes, spills and emergencies will also be considered.

COORDINATION REQUIREMENTS: Tasks on hazardous waste, land use and employment, and assessment/evaluation

BUDGET: \$6,000

TASK: Characterize hazardous waste production

PURPOSE: To determine the quantity and types of residual hazardous waste in discrete and nondiscrete industrial discharges as a result of alternative pretreatment measures

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 6

INPUT: Data from tasks on hazardous waste; other tasks on industrial discharges

MAJOR PRODUCTS AND EVENTS: Revision of estimates of hazardous wastes developed under tasks on hazardous waste

METHOD: Tasks on hazardous wastes will be reviewed, and data from other tasks on pretreatment and industrial dischargers will be incorporated to determine types of treatment or pretreatment and residuals that were generated. Present quantities of hazardous waste will be compared with potential quantities.

COORDINATION REQUIREMENTS: Tasks on hazardous waste

BUDGET: \$12,000

TASK: Develop institutional/financial mechanisms

PURPOSE: To develop alternative institutional arrangements and financing mechanisms to implement control measures for industrial discharges

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 13

INPUT: Previous tasks in the management plan; previous and ongoing institutional/financial supporting tasks

MAJOR PRODUCTS AND EVENTS: A list of alternative institutional arrangements and financing mechanisms to implement control measures previously defined in this management plan

METHOD: The control measures developed for this management plan will be combined with available products from the institutional/financial tasks. Technical memoranda describing the present institutional/financial system and listing available institutional/financial options will be produced. ABAG will develop criteria for evaluating and selecting the most appropriate options.

COORDINATION REQUIREMENTS: Other tasks on institutional/financial mechanisms

BUDGET: \$4,000

TASK: Describe continuing planning process

PURPOSE: To describe elements of the continuing planning process specific to the management plan for industrial discharges

RESPONSIBILITY: ABAG

START AND COMPLETION DATES: Month 11 to month 13

INPUT: Tasks on industrial discharges, assessment/evaluation, and institutional/financial

MAJOR PRODUCTS AND EVENTS: Identification of issues that have not been resolved during the preparation of this management plan, a series of recommendations to resolve these issues

METHOD: Tasks on industrial discharges will be reviewed, and problems that have not been solved will then be incorporated into the continuing planning process.

COORDINATION REQUIREMENTS: Tasks on assessment/evaluation, institutional/financial mechanisms, continuing planning process, the Environmental Management Task Force

BUDGET: \$2,500

TASK: Assess/evaluate

PURPOSE: To assess and evaluate individually and in combination the alternatives for industrial discharge formulated in the preceding tasks

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Alternatives and preliminary evaluation from previous tasks; assessment/evaluation procedures developed elsewhere

MAJOR PRODUCTS AND EVENTS: Impacts, evaluation, and assessment of the control measures for industrial discharge

METHOD: Assessment/evaluation procedures developed by ABAG elsewhere will be used to assess the alternatives.

COORDINATION REQUIREMENTS: Some contact with local agencies to determine views on such items as costs and implementability of alternatives

BUDGET: \$5,000

TASK: Prepare report

PURPOSE: To document the management plan for industrial discharges, including pretreatment requirements for nondiscrete dischargers, discharge limits for discrete industrial dischargers, institutional/financial mechanisms for both types, and a description of the continuing planning process

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: All previous tasks on industrial discharges

MAJOR PRODUCTS AND EVENTS: The Industrial Discharges management plan to include:

- data on industrial locations and projections of quality and quantity of liquid and solid waste
- control strategy for hazardous wastes generated by industries (in conjunction with the hazardous waste management tasks)
- a review and analysis of pretreatment requirements and systems for nondiscrete industries
- an analysis of the degree of treatment for industries in relation to municipal discharges
- identification of locations, capacity, type, level of treatment, residual disposal options, schedules for compliance and construction, and cost estimates for industrial facilities, treatment and pretreatment systems
- a regulatory program for the above
- institutional/financial mechanisms to accomplish the above
- a continuing planning process to determine schedules and goals for unresolved issues

METHOD: Previous tasks on industrial discharges will be reviewed and findings and recommendations will be incorporated. Public input and comments from the Environmental Management Task Force will be obtained.

COORDINATION REQUIREMENTS: Public input, Environmental Management Task Force; tasks on institutional/financial mechanisms

BUDGET: \$2,500

TASK: Assist in regional compilation, adjustment and assessment

PURPOSE: To assist in regional compilation, adjustment and assessment of the management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 20

INPUT: All previous tasks

MAJOR PRODUCTS AND EVENTS: An integrated environmental management plan

METHOD: Information and assistance will be provided to the regional assessment and plan integration team.

COORDINATION REQUIREMENTS: Tasks on evaluation and assessment and integration of management plans

BUDGET: \$6,000

Water Conservation, Reuse, and Supply

In California, large hydrologic projects have made possible the development of major urban centers (Seckler, 1971). Currently, five million acre-feet of water per year is used in urban areas, or about 13 percent of the water used in the state. The demand for water is expected to increase as the population increases, and new water supplies are becoming more costly and difficult to develop. As a result, the California Department of Water Resources and the State Water Resources Control Board have begun to consider reclaimed wastewater as a potential water resource (California Department of Water Resources, 1973; California State Water Resources Control Board, 1976), and water conservation is being advocated.

Water demand in the San Francisco Bay region was for approximately 1.9 million acre-feet in 1970; about half of this amount was used (Rantz, 1972). The water supply for the region will probably be adequate until 1990 (California Department of Water Resources, 1974), although there will probably be water shortages in some areas because the distribution of supplies does not correspond to the projected demand. Plans have been developed to supply water to these areas, which include parts of Marin, Napa, Sonoma, and Santa Clara counties, through projects such as the Warm Springs Dam and Reservoir and the North Bay Aqueduct; however, problems remain unresolved, and the plans have not been implemented. In the meantime, at least two water agencies, the North Marin County Water District and the Santa Clara Valley Water District, have begun reclamation and reuse and water conservation programs.

This management plan will examine the issues of water conservation, reuse, and supply in the Bay Area. Eleven tasks, listed below with their budgets, have been identified and are described in the following pages:

- o Collect information on water supply agencies in the San Francisco Bay region (\$12,000)
- o Project water demands for the region (\$7,000)
- o Develop water conservation measures (\$21,000)
- o Identify reuse markets (\$3,000)
- o Establish wastewater reclamation/reuse alternatives \$12,000)

- Formulate regional water resources alternatives (\$13,000)
- Provide data; monitor and review regional studies (\$10,000)
- Assess/evaluate (\$10,000)
- Describe continuing planning process (\$4,000)
- Prepare report (\$3,000)
- Assist in regional compilation adjustment and assessment (\$5,000)

The total budget for the development of this management plan is \$100,000.

References

- California Department of Water Resources. 1974. The California Water Plan: Outlook in 1974. Summary Report. DWR Bulletin No. 160-74.
- California Department of Water Resources. 1973. Waste Water Reclamation: State of the Art. DWR Bulletin No. 189.
- California State Water Resources Control Board. 1976. Water Quality Control Policy on Reclamation and Reuse of Wastewaters.
- Rantz, S.E. 1972. A Summary View of Water Supply and Demand in the San Francisco Bay Region, California. Open-File Report. Menlo Park, California: U.S. Geological Survey.
- Seckler, D., ed. 1971. California Water: A Study in Resources Management. Berkeley: University of California Press.

TASK: Collect information on water supply agencies in the San Francisco Bay region

PURPOSE: To identify present and future sources of water and to describe the hierarchy of water supply agencies and develop a water budget for the region

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 4

INPUT: Reports and records from water supply agencies and discussions with agency managers

MAJOR PRODUCTS AND EVENTS:

- o a diagram showing areas served by each agency
- o a list of water supply agencies with information on ownership, use rates per capita, seasonal variations in consumption, treatment facilities, present and future sources of water, quality and quantity of water, pricing policies, and institutional arrangements with water suppliers
- o a description of the transfer hierarchy, including pricing
- o a water budget for the region

METHOD: Information collected will be analyzed.

COORDINATION REQUIREMENTS: Tasks on Delta outflow in special studies, other management plans where necessary

BUDGET: \$12,000

TASK: Project demands for the region

PURPOSE: To project future demands for water for various uses (domestic, industrial, agricultural) according to sub-region, and to formulate a water budget

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 9

INPUT: Method for population, land use, and employment projections from other projection tasks; methods used by water agencies or in regional studies for determining water supply and demands

MAJOR PRODUCTS AND EVENTS:

- o a description of methodology and data used for projections
- o a set of water demand curves by use, subregion, and major water agencies; projections of needs to the year 2000, with indications given of ultimate needs

METHOD: Water demand projections will consider the effects of land use, population, economic and industrial growth on water consumption. Other considerations would include inputs from water agencies, and large users of water.

This procedure may need to be supplemented by projection techniques not tied to the ABAG projections on population, land use, and employment.

COORDINATION REQUIREMENTS: Tasks on population, land use, and employment projections, municipal wastewater facilities, and projections of wastewater quantity and quality; the methods of projecting wastewater quantity and quality and water needs to be consistent in order to facilitate analysis of reclamation and reuse systems in later tasks

BUDGET: \$7,000

TASK: Develop water conservation measures

PURPOSE: To provide water conservation programs for consideration by local water agencies

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 7

INPUT: Water conservation programs of water agencies and discussions with knowledgeable persons

MAJOR PRODUCTS AND EVENTS:

- an analysis of the effectiveness of existing water conservation programs by agencies in the Bay Area
- a list of water conservation measures
- development of water conservation alternatives with agency participation
- a program for implementing water conservation measures for each water supply agency; to include specific measures to be enacted, year in which measure will begin, method of implementation, expected cost, anticipated benefits from such measures

METHOD: Information on water conservation programs from agencies in the region and elsewhere will be gathered; discussions with agency managers will be held on the merits of each program; literature on water conservation measures will be reviewed.

COORDINATION REQUIREMENTS: water supply agencies on conservation measures; tasks on projection of water demand

BUDGET: \$21,000

TASK: Identify reuse markets

PURPOSE: To provide information on the type, location, and quantity and quality requirements of potential uses of reclaimed wastewater in the Bay Area

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 3

INPUT: Information from EBMUD, Santa Clara Valley Water District, Department of Health, Basin Plan, and other pertinent reports and information

MAJOR PRODUCTS AND EVENTS:

- o an annotated map of the region showing the identity and location of potential users
- o a table showing the characteristics of each potential market such as quality and quantity requirements, variations in demand, costs in comparison with regular water supply, future needs, and timing of reuse availability
- o energy requirements for wastewater reclamation
- o potential adverse environmental impacts

METHOD: Past reports will be reviewed and updated through discussions with key agencies or industries. Consideration should also be given to work in progress by the State Water Resources Control Board on the domestic reuse of reclaimed wastewater and to criteria for groundwater recharge with reclaimed water now being developed by the State Health Department.

COORDINATION REQUIREMENTS: Task on projection of water demands for the region.

BUDGET: \$3,000

TASK: Establish wastewater reclamation/reuse alternatives

PURPOSE: To connect wastewater dischargers with the reuse market by describing necessary facilities and operations required for such connections

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 3 to month 6

INPUT: Tasks on identification of markets for reclaimed wastewater, municipal wastewater facilities and institutional/ financial mechanisms

MAJOR PRODUCTS AND EVENTS: A set of annotated maps and tables showing alternative reclamation/reuse schemes and including information on the following:

- wastewater discharger agencies and wastewater reclamation program/potential
- the reuse market
- major constraints on implementation of the alternative, e.g. economics and public health
- recommended institutional/financial mechanisms
- schedule for implementation
- potential displacement of water supply

Discussion on the reuse issue from a groundwater basin management perspective

METHOD: Discussions will be held with critical agencies and industries to develop feasible alternative reuse schemes.

COORDINATION REQUIREMENTS: Wastewater agencies, potential users of reclaimed wastewater, water supply agencies, and the Department of Health; task on institutional/financial analysis

BUDGET; \$12,000

TASK: Formulate regional water resources alternatives

PURPOSE: To connect water supply, water demands, conservation alternatives developed by water agencies (see later task descriptions), and reclamation/reuse alternatives

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 8 to month 11

INPUT: Tasks on projection of water supply, water needs, conservation alternatives, and reclamation and reuse alternatives

MAJOR PRODUCTS AND EVENTS: A series of annotated maps showing alternative water resources schemes for the region, analysis of water use in terms of domestic, industrial, and agricultural demands accompanied by an abbreviated water hierarchy for at least the year 2000 and annotated to show significant facilities and the necessary institutional arrangements; list of reasons or ground rules for formulating the alternatives

METHOD: The outputs from tasks listed above under input will be analyzed and discussed with the critical water supply, wastewater agencies, regulatory agencies.

COORDINATION REQUIREMENTS: listed above

BUDGET: \$13,000

TASK: Provide data, and monitor and review regional studies

PURPOSE: To provide contact with major water agencies in the region to obtain information on ongoing activities

RESPONSIBILITY: Selected water agencies

START AND COMPLETION DATE: Month 0 to month 13

INPUT: No specific inputs

MAJOR PRODUCTS AND EVENTS: Continuous data and information on existing water supply studies and activities

METHOD: Meetings will be held at regular intervals with local agencies.

COORDINATION REQUIREMENTS: Water supply agencies

BUDGET: \$10,000

TASK: Assess/evaluate

PURPOSE: To assess and evaluate the water resources alternative

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Task on formulation of water resources alternatives and assessment/evaluation procedures developed by ABAG

MAJOR PRODUCTS AND EVENTS: An assessment of water resources alternatives in accordance with requirements developed at the regional level by ABAG

METHOD: Assessment procedures will be applied to the descriptions of the water resources alternatives.

COORDINATION REQUIREMENTS: Tasks on assessment and evaluation, providing data, monitoring and reviewing regional studies

BUDGET: \$10,000

TASK: Describe continuing planning process

PURPOSE: To describe aspects of the continuing planning process

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: All previous tasks in this management plan; assessment/evaluation and institutional/financial tasks

MAJOR PRODUCTS AND EVENTS: A description of elements of the continuing planning process related to this management plan

METHOD: Concerns that could not be adequately dealt with during the initial planning efforts will be identified. A process for resolving such issues will be developed.

COORDINATION REQUIREMENTS: Tasks on assessment/evaluation, institutional/financial mechanisms, continuing planning process; the Environmental Management Task Force

BUDGET: \$4,000

TASK: Prepare report

PURPOSE: To document the management plan for water conservation, reuse, and supply

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: All previous tasks in this management plan, especially the preceding task on assessment and evaluation of alternatives

MAJOR PRODUCTS AND EVENTS: A report describing the selected alternatives or best alternatives for water conservation, reuse, and supply in the region (As mentioned elsewhere in the work program, this management plan will likely not include all the institutional/financial mechanisms necessary for implementing the plan. These will be developed in the continuing planning process. The management plan will include conservation programs, reclamation and reuse programs, and plans for future supply of water to the region, including supply schemes involving institutional rearrangement.)

METHOD: The preparation of the management plan and the management plan itself will be described.

COORDINATION REQUIREMENTS: With water agencies before plan is documented; some additional coordination for particular aspects of the plan in this task

BUDGET: \$3,000

TASK: Assist in regional compilation, adjustment, and assessment

PURPOSE: To assist in regional compilation, adjustment, and assessment of the management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 20

INPUT: All previous tasks

MAJOR PRODUCTS AND EVENTS: An integrated environmental management plan

METHOD: Information and assistance will be provided to the regional assessment and plan integration team.

COORDINATION REQUIREMENTS: Tasks on evaluation and assessment and integration of management plans

BUDGET: \$5,000

Solid Waste

Section 208 requires that control measures and disposal needs for residual wastes or solid wastes be identified.

In the federal regulations, residual wastes are defined as the "solid, liquid or sludge substances from man's activities in the urban, agricultural, mining and industrial environment remaining after collection and necessary treatment." In 1972 the Nejedly-Z'berg-Dills Solid Waste Management and Resource Recovery Act of California (SB-5) was enacted to establish and maintain solid waste management and resource recovery policies and programs in the state. The legislation resulted from the recognition that increases in the volume and variety of solid wastes and the often inadequate methods of managing such wastes were creating conditions that threatened public health, safety, and well-being. Solid wastes were creating nuisances, causing air and water pollution, and constituted a waste of natural resources.

The SB-5 legislation specifies that the primary responsibility for solid waste management and planning shall rest with local government and requires the counties to prepare solid waste management plans. Accordingly, management plans have been developed by the nine Bay Area counties. These plans have identified issues to be addressed at the regional level: the evaluation of alternative, large-scale resource recovery systems; the availability of Class I sites for disposal of dangerous wastes in the region; and the management of wastewater treatment residuals. Some of these issues are being examined in the Bay Area Solid Waste Management Project, the Class I Site Study (State Solid Waste Management Board), and the Regional Municipal Wastewater Solids Management Study (EBMUD as lead agency).

During the two-year planning period, other issues will be identified. Issues of multi-jurisdictional and public/private financing of facilities for resource recovery and hazardous waste management and the acquisition of Class I sites will be considered in greater detail in the continuing planning process. Three interim plans will be developed on the coordination of county solid waste management plans and on problems that need to be addressed at the regional level.

The first interim plan will be an overview of the county solid waste management plans, which deal primarily with municipal and agricultural wastes. The interim plan will include recommendations to the legislature on requirements for data collection and on coordinating solid waste reporting requirements of state and regional agencies; control measures for existing solid waste disposal sites to protect ground and surface water quality; an identification of institutional and financial mechanisms for solid waste management programs; and an evaluation of technology for the waste recovery and conversion. Results of

the Bay Area Solid Waste Management Study being conducted by the State Solid Waste Management Board will be incorporated.

The second interim plan will deal specifically with hazardous wastes. Hazardous wastes are defined in the California Health and Safety Code as "any waste material or mixture which is toxic, corrosive, flammable or irritant, a strong sensitizer, which generates pressure through decomposition, heat or other means, if such a waste or mixture of wastes may cause substantial personal injury, serious illness or harm to wildlife, during or as a proximate result of any disposal of such wastes or mixture of wastes."

Two critical resource management issues are involved in land disposal of hazardous wastes. First, land areas that need strict hydrological and geological specifications for Class I sites (set and enforced by the State Water Resources Control Board and the regional boards to protect water quality) may be defined as critical areas to be preserved from urbanization. Second, during operation and after closure, a Class I site and the area surrounding it may be permanently unsuited for human use or wildlife habitat; thus in urbanized areas, such use may be environmentally or socially unacceptable. The interim plan will focus on the immediate need in Bay Area counties for Class I sites and will include a preliminary identification of areas that could receive dangerous wastes. Studies needed to verify the suitability of potential sites will be defined, and an investigation of institutional and financial arrangements for hazardous waste management will be conducted. A program for managing hazardous wastes will be developed in the continuing planning process. The program will include control and implementation measures for waste recovery and reuse to minimize the destruction of land used for deposition of dangerous wastes.

The third interim plan will be concerned with residuals from wastewater treatment processes. This interim plan will be based on the preliminary regional plan developed in the Regional Municipal Wastewater Solids Management Study which will be conducted by the East Bay Municipal Utility District as lead agency for a consortium of major dischargers. Information on industrial waste residuals to be developed in the industrial discharges management plan will also be incorporated.

References

- Alameda County Planning Department. 1975. Solid Waste Management Report. Preliminary report.
- California State Assembly. 1975. Assembly Concurrent Resolution No. 79: Relative to a Study of Waste Disposal Sites for Environmentally Dangerous Substances.
- California State Solid Waste Management Board. 1974. State Policy for Solid Waste Management.
- California State Solid Waste Management Board. 1976. Preliminary Findings and Recommendations. ACR 79 Investigation.
- California State Solid Waste Management Board. 1976. San Francisco Bay Area Solid Waste Management Project, Task Summary and Task Elements.
- East Bay Municipal Utility District. 1976. Preliminary Plan of Study: San Francisco Bay Area Regional Municipal Wastewater Solids Management Study.
- Garretson, Elmendorf, Zinov, Reibin, Architects and Engineers. 1976. County of Marin Solid Waste General Plan, Study and Report. Final report.
- Metcalf and Eddy Engineers. 1975. Contra Costa County Solid Waste Management Report. Preliminary report.
- Metcalf and Eddy Engineers. 1975. Solid Waste Management Plan for Santa Clara County. Preliminary report.
- Napa County Department of Public Works. 1976. Napa County Solid Waste Management Plan. Final report.
- San Francisco City and County Department of Public Works. 1975. San Francisco Solid Waste Management Plan. Final report.
- San Mateo County Engineering and Road Department. 1975. Solid Waste Management Plan for San Mateo County, California. Final report.
- Sonoma County Public Works Department. 1975. Solid Waste Management Plan for Sonoma County, California. Preliminary report.
- Trotter-Yoder and Associates. 1976. Solano County Solid Waste Management Plan. Preliminary report.

Solid Waste-Municipal. The following group of tasks describe the development of the interim municipal waste management plan.

TASK: Monitor county solid waste management (SB-5) plans and coordinate with county and state solid waste management boards

PURPOSE: To monitor the adoption and implementation of the county solid waste management plans and to provide liaison between the counties and the State Solid Waste Management Board

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 24

INPUT: Preliminary and final county solid waste management plans; synopsis of the county plans developed by the State Solid Waste Management Board

MAJOR PRODUCTS AND EVENTS: Progress report on the adoption and implementation of county plans

METHODS: Meetings will be held with county plan directors and staff of the State Solid Waste Management Board on a regular basis

COORDINATION REQUIREMENTS: Participation of the county plan directors and cooperation of SSWMB staff

BUDGET: \$7,000

TASK: Develop a regional overview of county SB-5 plans

PURPOSE: To develop an overview of solid waste management in the region

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 11

INPUT: Preliminary or final county solid waste management plans as required by SB-5; findings of the Bay Area Solid Waste Management Project developed by the State Solid Waste Management Board

MAJOR PRODUCTS AND EVENTS: Descriptions and maps summarizing current solid waste management planning for the region; identification of future planning needs; recommendations to the legislature on mandatory uniform requirements for data collection and on coordination of solid waste reporting requirements of state and regional agencies

METHOD: County solid waste management plans and findings of the Bay Area Solid Waste Management Project will be reviewed and evaluated. Present and future waste generation rates in the county plans will be compiled to develop regionwide waste generation rates. Present and proposed solid waste collection, transportation and disposal systems in each county, and the role of private industry will be examined. Any conflicts among the county plans and regionwide projections will be determined and resolved. Proposed collection, transportation, and disposal systems for each county will be combined to form a composite picture of solid waste management planning for the region

COORDINATION REQUIREMENTS: Participation of county solid waste management plan directors and refuse removal industry representatives

BUDGET: \$5,500

TASK: Review findings of Bay Area Solid Waste Management Project

PURPOSE: To review findings of the Bay Area Solid Waste Management Project and to evaluate information about currently available resource recovery systems

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 6

INPUT: Findings of the Bay Area Solid Waste Management Project; reports and publications on resource recovery systems

MAJOR PRODUCTS AND EVENTS: Review and evaluation of findings of the Bay Area Solid Waste Management Project and identification of future planning needs. Summary of findings on currently available resource recovery systems based on their technical feasibility and reliability, environmental safety, social, economic and environmental impacts, and effects on air quality to give local governments better information for decisions on investment in resource recovery facilities

METHOD: Findings of the Bay Area Solid Waste Management Project will be reviewed and evaluated with input from SB-5 plan directors. Regional issues not adequately addressed in the findings will be identified

COORDINATION REQUIREMENTS: Participation of the SB-5 plan directors; candidate resource recovery systems prepared and evaluated by the Bay Area Solid Waste Management Project (with assistance from ABAG). ABAG should work with SWMB in the evaluation

BUDGET: \$1,500

TASK: Identify disposal sites with water quality or nuisance problems

PURPOSE: To identify past and present sites where solid waste disposal has caused water quality or nuisance problems

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 1 to month 10

INPUT: County solid waste management plans; previous surveys, reports, publications of the State Health Department and the Regional Board on landfills in the Bay Region

MAJOR PRODUCTS AND EVENTS: A list of sites where solid waste disposal has caused water quality or nuisance problems; documentation of the type and extent of the problems at each site

METHOD: Sites with existing or potential problems will be identified based on previous and current surveys and reports of the State Health Department and the Regional Board. Information presented in the self-monitoring program (required by the Regional Board for active sites) will be reviewed

COORDINATION REQUIREMENTS: Survey to be coordinated with the Regional Board (The Board has been adopting requirements for all existing landfill disposal sites based on findings of previous surveys or site reports)

BUDGET: \$3,500

TASK: Develop control measures for disposal sites

PURPOSE: To identify controls to be established for the disposal of pollutants on land to protect ground and surface water quality (as required by the 208 regulations)

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 8 to month 11

INPUT: A list of disposal sites with water quality and nuisance problems; present landfill requirements of the Regional Board

MAJOR PRODUCTS AND EVENTS: A list of control measures; description of the actions, including institutional and financial arrangements, necessary to achieve the control measures

METHOD: Present landfill requirements of the Regional Board will be reviewed and evaluated, and landfill sites in the county solid waste management plans will be described. The list of sites where problems have been identified will be correlated with requirements of the Regional Board to determine the effectiveness of the requirements. If necessary, additional control measures will be developed and action to achieve the measures will be identified

COORDINATION REQUIREMENTS: Coordination between the development of control measures and the adoption of landfill requirements of the Regional Control

BUDGET: \$3,000

TASK: Assess/evaluate

PURPOSE: To assess and evaluate the alternative control measures formulated in the preceding tasks

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: The regional overview of solid waste management planning; control measures for solid waste disposal sites; the evaluation of currently available resource recovery systems; recommendations on uniform reporting requirements

MAJOR PRODUCTS AND EVENTS: The environmental, social, and economic impacts of the control measures

METHOD: Procedures and criteria for evaluation of control measures will be established using assessment and evaluation procedures and criteria developed in the assessment tasks. Relationships between resource recovery systems and air and water quality should also be evaluated

COORDINATION REQUIREMENTS: Coordination with the aspects of the assessment to be carried out at the regional level

BUDGET: \$4,000

TASK: Describe continuing planning process

PURPOSE: To develop a continuing planning process for solid waste management in the region

RESPONSIBILITY: ABAG.

START AND COMPLETION DATE: Month 11 to month 13

INPUT: County solid waste management plans; regional overview of solid waste management planning; institutional and financial arrangements for other environmental management programs

MAJOR PRODUCTS AND EVENTS: Process for the development of a regional solid waste management plan

METHOD: Previous solid waste management planning efforts will be reviewed. A process will be outlined to resolve technical, institutional, financial, and regulatory problems related to the development of a regional, multi-jurisdictional solid waste management system and resource recovery sites and facilities

COORDINATION REQUIREMENTS: Other tasks on the continuing planning process

BUDGET: \$2,000

TASK: Prepare report

PURPOSE: To document the interim municipal waste management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: Outputs of all previous tasks

MAJOR PRODUCTS AND EVENTS: An interim solid waste management plan which will include:

- o a regional overview of solid waste management;
- o recommendations to the legislature for mandatory uniform requirements for data collection and for coordinating solid waste reporting requirements to State and regional agencies
- o proposed control measures for existing solid waste disposal sites to protect ground and surface water quality
- o an identification of the institutional and financial mechanisms for solid waste management programs
- o an evaluation of current technology for the recovery of resources from wastes

METHODS: Products of all previous tasks will be compiled

COORDINATION REQUIREMENTS: All previous tasks

BUDGET: \$1,500

Solid Waste-Hazardous Waste. The following tasks describe the development of the interim hazardous waste management plan.

TASK: Review the findings of the Solid Waste Management Board Group I wastes-Class I sites study

PURPOSE: To review the findings of the Solid Waste Management Board Group I wastes-Class I sites study being conducted pursuant to Assembly Concurrent Resolution (ACR) No. 79 in order to incorporate the findings into other hazardous waste program tasks

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 3

INPUT: The Group I waste-Class I sites study

MAJOR PRODUCTS AND EVENTS: A list of findings of the study that can be incorporated into other hazardous waste program tasks

METHODS: ABAG will participate in the Bay Area task force for the study and will review and evaluate findings in the final report of the study (due to the State Legislature by June 30, 1976)

COORDINATION REQUIREMENTS: ABAG participation in the Bay Area task force for the study

BUDGET: \$1,500

TASK: Determine present and future production rates and existing management system for hazardous wastes

PURPOSE: To determine present and future hazardous waste production rates and identify existing collection, transportation, treatment, and disposal methods for hazardous wastes

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 3 to month 11

INPUT: Sections on hazardous wastes in the county solid waste management plans; findings of the State Solid Waste Management Board Group I wastes-Class I sites study; outputs of PLUM Model on locations of industries; information on industrial waste residuals to be developed in the industrial discharges management plan

MAJOR PRODUCTS AND EVENTS: Present and future hazardous waste production rates for each county; description of the existing practices for the labeling, storage, collection, transportation, treatment, and disposal of hazardous wastes in each county

METHOD: Sections on hazardous wastes of the county plans and the findings of the Group I wastes-Class I sites study will be reviewed. Hazardous wastes will be defined. Information on present and future waste generation rates and practices for disposal of hazardous wastes will be developed

COORDINATION REQUIREMENTS: County support; tasks on industrial discharges

BUDGET: \$6,000

TASK: Identify potential Class I site areas

PURPOSE: To identify potential areas in the region where Class I sites for hazardous wastes could be established

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 3 to month 11

INPUT: USGS reports; publications and maps on potential landfill sites in the region; present and future production rates of hazardous wastes

MAJOR PRODUCTS AND EVENTS: Maps to indicate locations of potential Class I site areas in the region

METHOD: Reports, publications, and maps on potential landfill sites in the region will be reviewed

COORDINATION REQUIREMENTS: Coordination with land capability work in the 701-assisted work program (also work with counties that have already done constraint mapping for Class I site reconnaissance--Alameda and Santa Clara Counties have done this kind of work)

BUDGET: \$4,500

TASK: Investigate institutional and financial mechanisms for hazardous waste management

PURPOSE: To conduct a preliminary investigation of institutional and financial arrangements for hazardous waste management

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 8 to month 11

INPUT: Tasks on existing management systems for hazardous wastes and potential Class I site areas

MAJOR PRODUCTS AND EVENTS: Identification of major issues relating to institutional and financial mechanisms for hazardous wastes management

METHOD: Present public and private roles in financing hazardous waste management will be described. The issues of multi-jurisdictional and public/private financing of hazardous wastes management facilities and acquisition of Class I sites will be identified. Issues will be more completely resolved in the continuing planning process

COORDINATION REQUIREMENTS: Other tasks related to institutional and financial mechanisms

BUDGET: \$1,500

TASK: Describe continuing planning process

PURPOSE: To identify a continuing planning process for hazardous waste management in the region

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Task on institutional and financial mechanisms

MAJOR PRODUCTS AND EVENTS: Process for the development of a regional hazardous waste management plan

METHOD: Previous planning efforts on hazardous wastes will be reviewed. A process to resolve technical, institutional, financial, and regulatory problems in hazardous waste management planning will be outlined

COORDINATION REQUIREMENTS: Other continuing planning process tasks

BUDGET: \$2,000

TASK: Prepare report

PURPOSE: To document the interim hazardous waste management plan developed in the preceding tasks

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: Outputs of all previous tasks

MAJOR PRODUCTS AND EVENTS: An interim hazardous wastes management plan which will include:

- o an estimation of present and future hazardous waste production rates in each county
- o a description of the existing hazardous waste management system
- o maps indicating locations of potential Class I site areas in the region
- o identification of major issues relating to institutional and financial mechanisms for hazardous wastes management
- o a description of a continuing planning process for the development of a comprehensive regional hazardous waste management plan

METHOD: Products of all the input tasks will be compiled

COORDINATION REQUIREMENTS: All input tasks

BUDGET: \$1,500

Solid Waste-Wastewater Residuals. The following tasks describe the development of the interim wastewater residuals management plan.

TASK: Assist and coordinate with regional municipal wastewater solids management study

PURPOSE: To assist the regional study team (led by EBMUD) in the development of the work plan to assure consistency with the 208 study

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 5

INPUT: Information on processing alternatives for municipal waste and wastewater residuals

MAJOR PRODUCTS AND EVENTS: A work plan for the regional wastewater residuals study that will be consistent with the 208 study

METHOD: ABAG will participate in the staff advisory committee and, as appropriate, in the policy direction of the study. It will provide input to the work plan development with respect to: 1) assuring consistency between the 208 work plan and the regional study work plan; 2) consideration of all wastewater residuals generated in the region; 3) consideration of co-processing alternatives for residuals and other solid waste; 4) use of common data base; 5) evaluation of the effect of 208 control measures on production of residuals; 6) use of 208 assessment/evaluation procedures for development of residual management alternatives

COORDINATION REQUIREMENTS: Bay Area Solid Waste Management Project of the State Solid Waste Management Board

BUDGET: \$1,500

TASK: Monitor development of the regional municipal wastewater solids management plan

PURPOSE: To monitor the development of the regional plan to insure that a preliminary plan will be produced in time to be incorporated into the 208 interim residuals management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 5 to month 15

INPUT: 208 work plan and schedule

MAJOR PRODUCTS AND EVENTS: A preliminary regional wastewater residuals management plan that can be incorporated into the 208 interim residuals management plan

METHOD: ABAG will participate in the policy board, as appropriate, and the staff advisory committee of the study

COORDINATION REQUIREMENTS: Cooperation of the five agencies engaged in the residuals study (East Bay Municipal Utilities District, the City of San Francisco, the City of San Jose, Central Contra Costa Sanitary District, and the Bay Area Sewage Services Agency)

BUDGET: \$3,000

TASK: Monitor development of the regional municipal wastewater solids facilities plan

PURPOSE: To monitor the development of the facilities plan to insure consistency with the 208 environmental management plans

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 15 to month 24

INPUT: The regional wastewater residuals management plan; preliminary 208 environmental management plans

MAJOR PRODUCTS AND EVENTS: Consistency between the facilities plan and the 208 environmental management plans

METHOD: ABAG will participate in the policy board, as appropriate, and the staff advisory committee of the residual management study

COORDINATION REQUIREMENTS: Development of preliminary 208 environmental management plans; cooperation between the five agencies engaged in the study

BUDGET: \$3,000

TASK: Describe the preliminary regional municipal wastewater solids management plan

PURPOSE: To describe the preliminary regional municipal wastewater solids management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 9 to month 11

INPUT: The preliminary plan of the EBMUD Municipal Wastewater Solids Management Study

MAJOR PRODUCTS AND EVENTS: A description of the preliminary plan

METHODS: Review and evaluate the preliminary plan of the Municipal Wastewater Solids Management Study

COORDINATION REQUIREMENTS: The preliminary plan has to be developed within the 208 time schedule.

BUDGET: \$1,500

TASK: Assess/evaluate

PURPOSE: To assess and evaluate the alternative control measures formulated in the interim regional residuals management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Alternative control measures for wastewater residuals

MAJOR PRODUCTS AND EVENTS: The environmental, social and economic impacts of the control measures

METHOD: Procedures and criteria for evaluation of control measures will be established using assessment and evaluation procedures and criteria developed in the assessment task

COORDINATION REQUIREMENTS: Task on assessment and evaluation; with the staff of the EBMUD involved in the regional study

BUDGET: \$3,500

TASK: Prepare report

PURPOSE: To document the interim regional residuals management plan developed in the preceding tasks

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: The description of the interim regional residuals management plan; products of the task on assessment/evaluation

MAJOR PRODUCTS AND EVENTS: An interim regional residuals management plan, which will include control measures, institutional/financial, and other actions to implement the control measures; a description of a continuing planning process for the development of a regional wastewater residuals management plan

METHOD: Products of all the input tasks will be compiled, and a continuing planning process will be developed

COORDINATION REQUIREMENTS: Coordination with all the input tasks

BUDGET: \$1,500

TASK: Assist in regional compilation, adjustment, and assessment

PURPOSE: To assist in regional compilation, adjustment, and assessment of the management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 20

INPUT: All previous tasks on municipal, hazardous, and residual wastes

MAJOR PRODUCTS AND EVENTS: An integrated environmental management plan

METHOD: ABAG will provide information and assistance to the regional assessment and plan integration team

COORDINATION REQUIREMENTS: Tasks on evaluation and assessment and integration of management plans

BUDGET: \$7,000

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DATA BASE

The purposes of the tasks in the Data Base section are to obtain data and manage the data for efficient use during the study period. The first group of tasks on data collection coordination and the data management system will be done by ABAG. Existing data will be compiled and a data management system will be developed. No new field data will be collected by ABAG as part of this work.

The second group of tasks on data collection will be undertaken by local agencies under contract to ABAG. The most important data to be collected are local development policies. These policies will be the basis for the population, land use, and employment projections. Local agencies will provide existing data to ABAG and will collect a limited amount of water quality data to augment the surface runoff management plans.

Data Collection Coordination and Data Management System

These tasks fall into two categories. In the first category is the environmental data management system which will concentrate on the collection of existing data on air quality, water quality, and solid waste. These data will be put into a data management system that will be used in this environmental management plan, and will also be an essential element of the continuing planning process.

The other category consists of an analysis of data on water quality and surface runoff to determine the adequacy of data and the implications of the data. As a result of the analysis, a water quality data collection program will be developed. The actual data collection program in the field will be undertaken by counties under the tasks on data collection in the following section.

TASK: Coordinate development of environmental data management system with management plans, special studies and data collection tasks

PURPOSE: To obtain information on the desired characteristics of data management system from those persons who will use the system during the preparation of the environmental management plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Information on data needs from those persons developing the management plans; guidelines on type, sources, and timing of needed data; summaries of data from data collection tasks

MAJOR PRODUCTS AND EVENTS: A data development schedule to meet the data needs of all management plan tasks (environmental data collection and data transfer projects, i.e., pre-processing for the automated data base, will flow from this schedule. This schedule will be monitored, reviewed, and updated throughout the development and operation of data management system.); a development schedule for specialized computer software required in the manipulation of environmental data; special data standards beyond those required for ABAG's geographic data base

METHOD: This task will be performed by a team made up of systems and data analysts. The function of this team will be to appraise persons developing the management plans of the data manipulation capabilities within the automated geographic data base, to assess overall environmental data needs based on data-need guidelines, to assess the capability of the data management system to respond to these needs, to consult with those coordinating 208 programs in order to establish data-need priorities, and, finally, to establish a critical path for data development that will meet these diverse needs.

COORDINATION REQUIREMENTS: With persons requiring environmental data development, particularly those dealing with management plan development, modeling, and assessment/evaluation tasks; with all initial environmental data collection projects

BUDGET: \$8,000

TASK: Develop environmental data management system

PURPOSE: To develop a system for managing existing and future data on air quality, water quality, solid waste, population, land use, and employment

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 2 to month 8

INPUT: The data development schedule prepared in the data management system coordination task; the set of air quality, water quality, and solid waste data assembled during the first three months of the work program; third is the development schedule for specialized software prepared in the data management system coordination task; continuous input of new and revised data-need guidelines from management plan, modeling, and assessment tasks

MAJOR PRODUCTS AND EVENTS: A functional data base that includes air quality, water quality, solid waste, population, land use, and employment data stored in one or more of the following ways:

- o on 1:24,000 scale mylar overlays to USGS 7-1/2' quadrangles
- o in digitized form within ABAG's automated geographic data base;
- o in alphanumeric (nongeographically referenced) data files

(All data will be documented in a consistent manner. The emphasis in this task will be upon rapid access to and manipulation of environmental data. By the completion of this task, a coordinated package of environmental data manipulation software will be developed and implemented.)

METHOD: The primary function in this task will be to carry out the data development schedule prepared in the earlier data management system coordination task. In this task, specific data development projects will be completed. Each project will entail data specification, project design, data source inventory, data acquisition, preprocessing, input to the data base, and documentation. Extensive preprocessing will usually be required to insure that incoming data with different definitions, characteristics, map scales, coverage, and levels of aggregation are placed in a format, scaled, and compiled to meet the standards established for ABAG's geographic data base.

Throughout this task, software improvements will be implemented in the geographic data base to meet the needs of the data management system.

COORDINATION REQUIREMENTS: With all persons involved in environmental data development, particularly those carrying out management plans, modeling, and assessment tasks; with data collection tasks, such as the water quality data, local development policy, and county utility data collection tasks

BUDGET: \$35,000

TASK: Operate environmental data management system

PURPOSE: To operate the data management system on demand from those persons developing the management plans or carrying out the regional supporting program

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 8 to month 20

INPUT: This is an operational service task designed to respond quickly to requests for environmental data and/or manipulation of environmental data from persons preparing the environmental management plans or participating in the regional supporting program.

In addition to use requests, requests for additional data development projects will also provide input to this task, as will the data transferred into the data management system from outside sources.

MAJOR PRODUCTS AND EVENTS: Increased data access service; i.e. increases in environmental data manipulation capability, and in environmental data input to the data base

METHOD: Those ABAG staff who earlier performed data development functions will provide application support either as active participants on plan preparation teams or as environmental data base experts to whom users will come for assistance in designing data applications and in using the environmental data base.

COORDINATION REQUIREMENTS: With all users who need environmental data, particularly those involved in assessment/evaluation activities; with outside agencies wishing to use the data management system

BUDGET: \$44,000

TASK: Compile existing air quality, water quality, and solid waste data

PURPOSE: To inventory, review, and collect data on air quality, water quality, and solid wastes

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 3

INPUT: Data specifications and data source listings from those persons needing air quality, water quality, and solid waste data

MAJOR PRODUCTS AND EVENTS: A file listing all data inventoried, their characteristics, record structure (mapped and unmapped), coverage (spatial and temporal), and custodial status (for data not actually collected); appropriate data to be collected and organized for later processing into the geographic data base

METHOD: Sources of environmental data will be inventoried and evaluated. Appropriate data will be collected for later processing.

Air quality data will be provided by the Bay Area Air Pollution Control District and will include stationary source emission inventory data and ambient air quality data from twenty-four area monitoring stations.

Water quality data will be selected from a number of existing sources, including:

- o the Regional Water Quality Control Board self-monitoring program for municipal and industrial dischargers (effluent and receiving waters) and solid waste landfill sites
- o data from special studies, including those conducted by the U. S. Geological Survey, the Department of Water Resources, the Bureau of Reclamation, the Corps of Engineers, the Department of Fish and Game, dischargers, counties, and local flood control districts
- o studies on reservoirs, wells, and surface water listed in Appendix D of the Basin Plan

- o automated data bases such as those found in the Lawrence Berkeley Laboratory file on existing water quality data bases, the EPA computerized network (STORET) of water quality data; and the State Water Resources Control Board program to incorporate a consistent reporting and processing format into the self-monitoring program for dischargers and to develop a STORET compatibility

Solid waste data will be survey input as well as existing data, including:

- o a survey of hazardous waste generation rate by industry
- o a survey of past and present landfill sites for data related to water quality and nuisance problems
- o municipal and industrial wastes determined from county plans
- o potential Class I sites by counties

COORDINATION REQUIREMENTS: All management plans (including assessment and modeling functions), the environmental data management system, and other data collection activities

BUDGET: \$44,000

TASK: Analyze existing water quality data for runoff problems

PURPOSE: To provide early information on water quality problems caused by surface runoff

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Data specifications and evaluation criteria provided by the coordinating staff of the surface runoff management plan

MAJOR PRODUCTS AND EVENTS: A summary file of available runoff data, an evaluation of their usefulness in assessing runoff problems; a procedure by which these and future runoff data can be structured and processed

METHOD: This task will require an intensive effort over a short period of time. Emphasis will be placed on the rapid assessment of data needs and availability and the timely incorporation of runoff data into the geographic data base.

Data sources will probably be limited, but may include the sampling program carried out by the Corps of Engineers and the self-monitoring program for dischargers (particularly data collected near outfalls during storm periods).

COORDINATION REQUIREMENTS: Surface runoff management plan activities, tasks on storm runoff modeling, water quality data collection, and coordination and development of the environmental data management system

BUDGET: \$12,000

TASK: Develop and organize water quality and wastewater data collection program for county agencies

PURPOSE: To organize a collection and analysis program for water quality data that can be operating beginning in late 1976

RESPONSIBILITY: ABAG

STARTING AND COMPLETION DATE: Month 0 to month 4

INPUT: Previous staff work on surveys of data availability

MAJOR PRODUCTS AND EVENTS: A draft staff report indicating data availability and data deficiencies for determining stormwater runoff and other nonpoint pollutant loadings to San Francisco Bay; the recommendations on the amount and type of data to be collected by county agencies

METHOD: Data sources will be reviewed to determine the type and amount of information available; sources will include local, state and federal agencies and consultants. Primary sources include county flood control districts, municipal dischargers, the Regional Water Quality Control Board, and consultants for the Basin Plan and other water quality studies. The data will be analyzed to determine their usefulness.

COORDINATION: Water quality model consultant; local county agencies; water quality data sources

BUDGET: \$17,000

TASK: Coordinate county data collection program

PURPOSE: To maintain coordination with county data collection programs established as a result of the previous task

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 13

INPUT: Recommendations on data collection from previous task

MAJOR PRODUCTS AND EVENTS: Review by ABAG staff of data collected by local agencies; recommendations on possible modifications of the data collection program

METHOD: Staff will review data submitted by local agencies and confer with management and consultants on the usefulness as submitted.

COORDINATION REQUIREMENTS: Consultants on analytical procedures; local county agencies

BUDGET: \$30,000

TASK: Describe data collection for continuing planning process

PURPOSE: To describe those elements in the continuing planning process related to water quality data collection

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 13

INPUT: Previous tasks

MAJOR PRODUCTS AND EVENTS: Recommendations on additional data collection, and on monitoring and sampling programs that should be initiated or continued beyond the initial two year program; indications of locations, parameters, and frequency of data collection; recommendations on responsible agencies to fund and implement programs

METHOD: Ongoing data collection programs will be reviewed, and feedback from counties and other agencies will be obtained.

COORDINATION REQUIREMENTS: Responsible local, regional, and state agencies; tasks on data base; water quality modeling consultant

BUDGET: \$12,000

TASK: Describe environmental data management for the continuing planning process

PURPOSE: To describe parts of the continuing planning process related to the management of environmental data

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 13

INPUT: An assessment of the continuing planning process, i.e. guidelines for data development, monitoring, and updating to meet the need of continuing environmental planning

MAJOR PRODUCTS AND EVENTS: A plan for expanding service to more users; a procedure to process monitoring data; data management system updating procedures; and a schedule for additional data development projects (Emphasis will be placed upon developing plans for data sharing among a wide range of users.)

METHOD: The data management system will continue to operate in the continuing planning process as it has evolved in the two year planning process. In this task, staff will assess a wider array of user needs and recommend to the continuing planning coordinators the steps necessary to meet those needs. Special attention will be given to ongoing (monitoring/updating) needs for environmental data in the continuing planning process.

COORDINATION REQUIREMENTS: Persons performing continuing environmental management functions, data management system staff, and potential data base users

BUDGET: \$8,000

TASK: Prepare report

PURPOSE: To prepare a report summarizing data obtained, drawing conclusions based on an analysis of these data, and describing the method of data collection

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 13 to month 14

INPUT: Previous tasks on data base

MAJOR PRODUCTS AND EVENTS: A report on the data collection and compilation programs summarizing data obtained from all sources (including county data collection programs on local development policies, institutions and finances, utilities and water quality, air quality, and solid waste)

METHOD: Data obtained from various sources in the program will be compiled and reviewed.

COORDINATION: All other tasks

BUDGET: \$8,000

Data Collection

All of these tasks will be performed by the counties under contract to ABAG. Data will be obtained or collected on:

- o water quality (especially related to runoff)
- o local development policies
- o institutions and finances of local agencies
- o utilities and past development

These data will be incorporated into the environmental data management systems, and will augment other data compiled by ABAG staff on air quality, water quality, and solid waste.

TASK: Provide local development/environmental policies to ABAG

PURPOSE: For subregional agencies that control local development, whether by regulation or by provision of essential services, to provide information to ABAG about their current operating policies and policy instruments

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Already started, to month 3

INPUTS: Local policy survey collection instrument designed by ABAG, with assistance of local agencies

MAJOR PRODUCTS AND EVENTS: A regionwide inventory of local development and environmental policy instruments and the policies those instruments are intended to implement. (The inventory would be in a format to make possible an assessment of the regional implications of the consistencies and inconsistencies of local policies); workshops involving local agencies, perhaps by county, to explain the purpose and method of the survey and to review survey problems and inventory products

METHOD: A survey instrument will be developed that combines questionnaire and map formats. The survey will be conducted among local agencies through a combination of interview, mailback, and call-back methods by local agency representatives with ABAG assistance.

COORDINATION REQUIREMENTS: Information on institutions and finances, information on past development tasks; the PLUM Model for Base Projections

BUDGET: \$60,000

TASK: Provide information to ABAG on institutions and finances

PURPOSE: For local lead agencies involved in the preparation of county surface runoff management plans to provide ABAG with information on municipal, county and special district involvement in environmental management (This information will be useful to the local lead agencies but it will also be used by ABAG for the preparation of the management plans other than surface runoff.)

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 1 to month 4

INPUT: ABAG will prepare and submit to the local lead agencies a listing of informational needs regarding institutions and finances.

MAJOR PRODUCTS AND EVENTS: ABAG will request the following information on general purpose governments (counties, municipalities) and special districts relating to environmental management responsibilities:

- o a list of agencies or institutions so involved
- o a description by agency or institution of its legal powers relating to environmental management
- o a description by agency or institution of the functions relating to environmental management
- o a map or other identification of the geographic boundaries of the agency or institution
- o a listing by agency or institution of the population served
- o a description by agency or institution of the financial techniques employed for environmental management
- o a recent history of bond elections for environmental management by agency or institution
- o an enumeration and description of existing interagency agreements (joint powers agreements, contractual arrangements, etc.) for environmental management

METHOD: This information comes from many sources. Because the task concerns local government participation in environmental management, it will be most appropriate for local lead agencies in each county to determine how they will collect information.

COORDINATION REQUIREMENTS: Local policy collection

BUDGET: \$17,000

TASK: Provide information on utilities and past development to ABAG

PURPOSE: To provide ABAG with a summary of utility provision and development on a county by county basis for the period prior to 1960 and from 1960-1975

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 0 to month 3

INPUT: Existing data and records

MAJOR PRODUCTS AND EVENTS: A written and mapped inventory of the service areas, showing, where applicable, the main lines and plant locations of water supply facilities; sanitary sewer facilities; flood control projects, and other utilities; the date of placement (by year from 1960-1975, or prior to 1960); capacity or project size; location; service area; policy agency responsible

A mapped inventory of major residential, individual and community development showing size and date

METHOD: Service provider records and maps and permit and subdivision approvals will be reviewed.

COORDINATION REQUIREMENTS: Input to relationship between utilities provision and urbanization patterns; task on developing the environmental data management system

BUDGET: \$17,000

TASK: Carry out water quality data collection program

PURPOSE: To carry out the water quality and wastewater data collection program under contract to ABAG; to provide data on surface runoff

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 4 to month 13

INPUT: Work program developed for counties

MAJOR PRODUCTS AND EVENTS: Pre-storm season monitoring, and monitoring throughout period; arrangements for analysis of samples collected; a summary of data collected and analyzed, and entered into the ABAG data management system

METHOD: The program should be structured so that early outputs of critical data, especially on surface runoff, can be made available to the management plan. Coordination with 208 (and water quality) coordinator and modeling consultants will be arranged frequently, (after one month and after major storm events). The adequacy of the program to fulfill data needs will be assessed. The program will be modified if the ABAG 208 (or water quality) coordinator finds it necessary in order to better fulfill the data needs of the 208 program. The program will be assessed after the interim monitoring report is produced.

COORDINATION REQUIREMENTS: Tasks on surface runoff

BUDGET: \$60,000

TASK: Describe data collection for continuing planning process

PURPOSE: For the local agencies to make recommendations to ABAG on the need for data collection in the continuing planning process

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 9 to month 11

INPUT: Tasks on data collection and ABAG coordination

MAJOR PRODUCTS AND EVENTS: Recommendations on the necessity for the type, and the extent of data collection programs after two years. (Recommendations will be forwarded to ABAG for consideration in overall continuing planning process. Data could include air, water, solid waste, development, utilities, and institutions.)

METHOD: The adequacy of existing data will be determined. Discussions will be held between ABAG staff and appropriate consultants.

COORDINATION REQUIREMENTS: ABAG staff and consultants on modeling

BUDGET: \$11,000

TASK: Prepare report

PURPOSE: For counties to prepare a final report on the data they have collected under contract to ABAG

RESPONSIBILITY: Local (county) agencies

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Previous tasks on data collection

MAJOR PRODUCTS AND EVENTS: Final reports to be prepared by each county summarizing the data obtained for ABAG under contract, including data on water quality, air quality, solid waste, local development policies, utilities, and institutions and finances

METHOD: Review and summary of data transmitted to ABAG

COORDINATION REQUIREMENTS: Previous tasks on data collection

BUDGET: \$11,000

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REGIONAL SUPPORTING SERVICES

This group of tasks covers all of the supporting technical services provided by ABAG either through its staff or through consultants to develop the management plans and conduct the special studies. This group of tasks includes projections of population, land use, employment and transportation; the adoption and use of analytical tools; the development of assessment procedures and assistance to the management plans in using these procedures; and local and regional institutional and financial analyses.

Population, Land Use, Employment, and Transportation

Population, land use, employment and transportation projections used will be the ABAG "Series 3" projections. These include base case projections, which will provide the initial input into the development of estimates on air, water, and solid waste pollution under a continuation of current development and environmental policies. Alternative projections will be run to test the effects of the various control measures. The projections will be developed using a modeling system with the following components: regional demographic and economic models and subregional basic employment figures (BEMOD), projected land use (PLUM), and transportation models. State and national studies will be used where appropriate.

TASK: Collect and analyze local development policies

PURPOSE: To design a survey instrument, supervise and assist local agencies in its administration, and analyze the survey results. The survey instrument will be used to collect information on land development actions from subregional agencies that exercise control over local development, whether by regulation or through the provision of essential services. This policy information will be used to represent local growth capacity in the regionwide model projections of population, employment, and land use. It will also be used to assess the effects of local growth management programs on regional environmental objectives.

RESPONSIBILITY: ABAG, with assistance of counties, selected cities and special districts

START AND COMPLETION DATE: Already started to month 3

INPUT: Local policy survey collection instrument designed by ABAG with assistance from local agencies (see task on data collection by local agencies)

MAJOR PRODUCTS AND EVENTS:

Products:

- o a regional/local liaison structure to orient local agencies to the field survey, to conduct the field interviews, and to clarify survey response
- o inventory of local development/non-development policies
- o assessment of inter-jurisdictional inconsistencies among local agency policies
- o an estimate of local growth capacity for regionwide projections of population, employment, and land use

Events:

- o regional and local meetings and workshops to establish local participation in the conduct of the survey and to review survey problems and inventory product
- o a field survey by local participating agencies (perhaps counties or selected cities and special districts) with assistance from ABAG of all significant local agencies in their subregional areas, to collect pertinent information on development and non-development policies and policy instruments (see task on data collection by local agencies)
- o compilation and analysis of local development and non-development policies by ABAG

METHOD: A survey instrument that combines questionnaire and map formats will be used. The instrument will be administered to local agencies by a combination of interview, mailback and callback methods by local agency representatives (with assistance from ABAG as required)

Policy inventory data will be compiled to reconcile inconsistencies of definition, scale, coverage, and levels of aggregation in order to meet standards established for the data base

COORDINATION REQUIREMENTS: Information on institutions and finances will be provided; the PLUM model will be developed for base projections

BUDGET: \$42,500

TASK: Develop and run land use/transportation models for base case projections

PURPOSE: To adapt the existing land use/transportation models to air and water quality planning. This will include the incorporation of data into the modeling system; structuring base case assumptions; running the base case projections for land use, population, and employment; and the conversion and presentation of these projections as areal units appropriate to air, water, and solid waste planning. This work will by the foundation for much of the technical work of this plan.

The base case assumptions will reflect the current development and environmental policies of service providing and regulatory agencies and a plausible range of demographic and economic assumptions.

RESPONSIBILITY: ABAG, MTC

START AND COMPLETION DATE: Already started to month 6

INPUT: Existing land use/transportation modeling system; local development/environmental policies; transportation network assumptions, and regional economic and population projections

MAJOR PRODUCTS AND EVENTS: Products include the production of base case projections of land use, population, and employment at appropriate areal units and in five-year increments from 1970 to 2000. Other products will be a method of converting outputs to appropriate areal units

The following events will take place:

- o development of base case assumptions in conjunction with local agencies
- o incorporation of appropriate data into the modeling system, including data about local development and environmental policies
- o conversion of model outputs from 44 map zones (covering entire nine-county bay region) to appropriate areal units such as hydrological subunits and air basins
- o production runs of base case projections

METHOD: A land use/transportation modeling system with the following components will be used: regional demographic and economic models and subregional basic employment (BEMOD), projective land use (PLUM), and transportation models. State and national studies will be used where appropriate. Mathematical techniques will also be developed for disaggregating/aggregating projection outputs to appropriate areal units.

COORDINATION REQUIREMENTS: All management plans, including surface runoff and air quality maintenance; all data base tasks, including water quality data collection and data collection by local agencies; and the following supporting services: air quality, storm runoff, water quality modeling, and assessment and evaluation

BUDGET: \$35,500

TASK: Analyze model development/environmental policies and incorporate into modeling system

PURPOSE: To analyze local policies with respect to their use primarily within the land use/transportation modeling system and then to translate policies into an appropriate format to be incorporated into modeling system

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 2 to month 5

INPUT: Data collection by local agencies

MAJOR PRODUCTS AND EVENTS: Products will include a set of development/environmental policies translated into a suitable format for incorporation into the model;

The following events will take place:

- o analysis of local policies with respect to their use primarily within the modeling system
- o translation of local policies into suitable format for use in models

METHOD: The implications of policies will be reviewed and policies will be quantified (where possible) into model variables such as available land, densities, growth rates and limits.

COORDINATION REQUIREMENTS: Data collection by local agencies, tasks on assessment and evaluation

BUDGET: \$26,000

TASK: Prepare technical report documenting the base case projections

PURPOSE: To prepare concise documentation of the base case projections of population, land use, and employment; to summarize the assumptions and techniques used in developing these projections

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 6

INPUT: Base case projections, basic assumptions, and data collection by local agencies

MAJOR PRODUCTS AND EVENTS: Documentation of base case projections, basic assumptions, and techniques used in a technical report

METHOD: Projections will be documented with computer generated reports

COORDINATION REQUIREMENTS: Tasks on data collection by local agencies, assessment and evaluation, management plans, and data base

BUDGET: \$5,500

TASK: Use land use/transportation modeling system for assessment

PURPOSE: To use the land use/transportation modeling system to test the effects on air and water quality of alternative land use/transportation controls and to provide basic driving inputs into a number of other analytical techniques for assessment

RESPONSIBILITY: ABAG, MTC

START AND COMPLETION DATE: Month 6 to month 20

INPUT: Task on development of land use/transportation modeling system

MAJOR PRODUCTS AND EVENTS: The major products will be model runs incorporating land use/transportation control strategies, which are useful in air and water quality assessment

Events will include:

- o translation of controls into a format that can be incorporated into models
- o sensitivity testing of the modeling system to controls relevant to air and water quality assessment
- o production runs incorporating alternative land use/transportation controls
- o interpretation and analysis of the impact of control on air and water quality

METHOD: Land use/transportation modeling system and other analytical techniques will be used as required.

COORDINATION REQUIREMENTS: Tasks on storm runoff, water quality, and air quality modeling and assessment and evaluation

BUDGET: \$85,000

TASK: Special industry studies to support projections

PURPOSE: To analyze selected industries that are significant because of their air and water quality impacts or because of their critical roles in determining growth of the region as a basis for developing projections of future levels of activity (agriculture, petrochemicals, and food processing to be included)

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 1 to month 5

INPUT: Industrial literature

MAJOR PRODUCTS AND EVENTS: The major product will be a listing of special industries and an analysis of their relationships to development, growth and environmental impacts.

The following events will take place:

- o literature research
- o field contacts with selected industry groups
- o incorporation of study results into models and analyses

METHOD: An in-depth study will be conducted of selected industries, which will include a study of published literature and a selected number of field contacts.

COORDINATION REQUIREMENTS: Tasks on surface runoff, nonpoint sources, industrial discharges, water quality data collection, the environmental data management system, water and air quality modeling and assessment and evaluation

BUDGET: \$16,000

TASK: Describe projection methods for continuing planning process

PURPOSE: To develop, based on work in preparing the Environmental Management Plan, a description of aspects of the continuing planning process pertinent to the projection of population, land use, and employment, including new data and methods to assess projections

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 11 to month 13

INPUT: Feedback from local agencies, assessment and evaluation, base case projections, data base, and management plans

MAJOR PRODUCTS AND EVENTS: The major product will be recommendations for providing improved and updated projections for continuing environmental management

The major events will be:

- o identification of data needs for a continuing projection program
- o identification of shortcomings and recommended approaches for improvement
- o recommended approach for when and how the projections will be modified
- o recommended procedure for continuing review and input by local agencies

METHOD: Usefulness and accuracy of the projections will be analyzed according to various criteria, and feedback will be obtained from local agencies.

COORDINATION REQUIREMENTS: Assessment and evaluation, local agencies

BUDGET: \$7,500

Water and Air Quality Analytical Procedures

These tasks are concerned with the application of existing water and air quality mathematical models. Three types of models are being considered. Storm water runoff models will be used to relate land use to the quality and quantity of surface runoff. Water quality models will be used to determine the effect of pollutant sources on the waters of the region. Because substantial work on water quality modeling has been done in previous studies, emphasis will be placed on pollutant sources for which only limited modeling has been done, such as surface runoff. Air quality models will be used to determine the generation and dispersion patterns of pollutants and to determine the effectiveness of various control measures proposed by the air quality maintenance plans. The basic modeling work will be done by consultants.

Water and Air Quality Analytical Procedures-Storm Runoff. The following tasks will be undertaken by a consultant to provide modeling services to the local agencies and to ABAG in the area of storm runoff.

TASK: Determine hydrologic bases for runoff analysis

PURPOSE: To determine what set or sets of hydrologic conditions will be used for the runoff analyses

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 1 to month 2

INPUT: Weather Bureau records

MAJOR PRODUCTS AND EVENTS: Sets of intensity-duration-frequency precipitation relationships for each of eight specific areas (all of the counties except San Francisco); means of creating hydrographs from intensity-duration-frequency curves; recommendations in regard to the most statistically probable first storm, (the "first flush") one for each of the eight areas

METHOD: Information and hydrological techniques will be reviewed. The determination of the hydrologic bases should consider the type of information required to assess the water quality effects of surface runoff (that is, what frequency or range of frequencies of runoff events are of concern), as well as the practical aspects related to the number of runs to be made and the allowable budget for these tasks. Consideration should also be given in the task to the regionwide hydrologic bases; for example, in the regional assessment of surface runoff management plans, will it be appropriate to assume that it is raining in Marin County at the same time it is raining in the Livermore Valley?

COORDINATION REQUIREMENTS: None

BUDGET: \$12,000

TASK: Specify surface runoff model inputs and outputs

PURPOSE: To specify the requirements for model input and information that would be available from the model

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 1 to month 2

INPUT: Information needed by assessment and evaluation task groups

MAJOR PRODUCTS AND EVENTS: A list of specific model input requirements for hydraulic simulations and for quality simulations (All units will be specified in acres, pounds, etc), the form of the information presented will be defined, i.e., tables, maps, punched cards, etc.

Identification of parameters that can be modified, delineation of the possible range of modifications, i.e., land use, rural, single-unit housing, etc.

Description of model printed output, including parameters, time scales, and units (Outputs will be clearly labeled and easy to read, it will satisfy requirements above (see input).)

Description of model computer data storage (Formats must interface with input requirements to the water quality model)

METHOD: This task will require familiarity with model.

This task will govern much of the descriptive work done on the development of surface runoff management plans; for example, descriptions of control measures must be made so that they can be translated into surface runoff model inputs. This task will also be critical for the group of tasks on assessment and evaluation because the storm runoff model will be a key analytical tool in the assessment task

COORDINATION REQUIREMENTS: Output formats to coincide with input formats of water quality model, printed output to satisfy assessment and evaluation task groups

BUDGET: \$12,000

TASK: Adapt model geometrics for local and regional use

PURPOSE: To adapt the geometrics for use on a county-by-county basis at the regional level for surface runoff analysis, using existing model (Geometrics are numerical descriptions of the drainage system's parameters)

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 1 to month 6

INPUT: All necessary information as specified in task on surface runoff model inputs and outputs

MAJOR PRODUCTS AND EVENTS: Eight sets of geometrics suitable for stormwater surface runoff; maps with overlays of the numerical areas and channels used in the simulations; a base case computer simulation for each geometric set of both hydraulics and quality; a complete data check for ABAG for each set of geometrics

METHOD: This task involves the adaption to a single model's requirements for eight specific areas (all of the counties except San Francisco). The local agencies will supply the descriptions of the runoff system, which must be adapted in that county

COORDINATION REQUIREMENTS: Prompt data input from each local agency (This is a potential area of serious difficulty.)

BUDGET: \$62,000

TASK: Run storm runoff model

PURPOSE: To run the storm runoff model in support of the preliminary analyses for the counties, the surface runoff management plans, and for the local and regional assessments of alternative control measures

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 7 to month 20

INPUT: Geometrics from task for development of geometrics, hydrology from task to develop hydrology, special requirements of group requesting runs

MAJOR PRODUCTS AND EVENTS: Output of simulation results from each run (For runs where additional information is required using the receiving water quality model, tape/magnetic storage output will be provided. Some runs will require changes in the geometrics, for instance, if a large flood storage area is required.)

METHOD: Parameters and/or geometrics will be changed, and runs made on request.

This task runs throughout the entire program up to the production of the draft Environmental Management Plan. Storm model runoff runs will be made on demand by local agencies and by persons responsible for regional assessment. Therefore, one characteristic of the running of the model should be extremely rapid turn-around time.

COORDINATION REQUIREMENTS: Contractor must always have at least one person available to make runs as required.

BUDGET: \$32,000

TASK: Transfer model capability to ABAG

PURPOSE: To transfer the capability for adaptation and use of the surface runoff model to the ABAG staff

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 17 to month 22

INPUT: Other modeling tasks

MAJOR PRODUCTS AND EVENTS: The surface runoff computer program to be installed on computer available to ABAG; a test data set to be provided; a card deck of the surface runoff model and a copy, suitable for reproduction, of a user's guide for the surface runoff model to be provided to ABAG

METHOD: This is a key task and will occur late in the program. It should be the subject of a formalized training program. It would be desirable to have the transfer of model capability begin as early as possible, to the point of having key ABAG staff members participate in running the storm runoff model during the development of the environmental management plan. One month of "hand's-on" training, using ABAG equipment to be provided, including necessary lectures, examples, and problems to fully train ABAG personnel in the use of the surface water model.

COORDINATION REQUIREMENTS: ABAG to provide lecture rooms, trainee personnel (not to exceed 6), and computer equipment and to set schedule

BUDGET: \$12,000

TASK: Coordinate with management plans and data collection

PURPOSE: To insure that the surface runoff management plan, the data collection tasks, and the initial work will be consistent with the development and the special use of the storm runoff model

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 1 to month 3 (initial)
Month 3 to month 20 (ongoing)

INPUT: No specific inputs

MAJOR PRODUCTS AND EVENTS: Initially: A meeting of the water quality and stormwater runoff modelers; the water quality monitoring consultant; and the 208 (and water quality) coordinator to discuss needs and expectations

Ongoing: Liaison, performed by the 208 (or water quality) coordinator, among the model adaptation and operation tasks, water quality monitoring tasks, and the surface runoff management plans to provide information for program development

METHOD: This task will involve communication with the data collection tasks and the surface runoff management plans with respect to the type of information required for the models and the type of information expected back, turn-around time on model runs, the model use, etc.

COORDINATION REQUIREMENTS: As above

BUDGET: \$12,000

Water and Air Quality Analytical Procedures-Water Quality. The water quality model(s) will be used to determine the impact of various pollutant sources on the Bay.

TASK: Specify inputs and outputs of the water quality model

PURPOSE: To define the inputs and outputs of the model

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 1 to month 3

INPUT: Data from point and nonpoint sources other than the surface runoff models; river flows and tides; output information for assessment and evaluation task groups

MAJOR PRODUCTS AND EVENTS: List of specific model input requirements for hydraulic simulations and for quality simulations; specification of all dimensions, i.e., pounds per day, mg/l, etc. and the form of input information i.e., tables, maps, etc. (Output formats of the surface runoff models must interface with the input formats of the water quality models.); description of model printed output, including parameters, units, time scales (Output must be clearly labeled and easy to read. It will satisfy the requirements above (see input).)

METHOD: This is a key early task; it will have to be closely coordinated with analogous tasks for the storm runoff model, and the outputs of the storm runoff model will serve as inputs to the water quality model. The task will also impose restrictions on the municipal waste discharges management plan, as those discharges must be described in terms that are usable in the water quality model

COORDINATION REQUIREMENTS: Input formats to coincide with output formats of the surface runoff models; printed output to satisfy assessment and evaluation task groups

BUDGET: \$6,500

TASK: Adapt model for runoff analysis

PURPOSE: To adapt what will likely be an existing model to provide the necessary special detail to accommodate the transient nature of storm events

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 1 to month 7

INPUT: Model geometry, necessary maps of San Francisco Bay

MAJOR PRODUCTS AND EVENTS: A grid representing the San Francisco Bay-Delta in sufficient detail to reflect local water quality changes but not of such fine detail that computer costs become overwhelming (The "coarse grid" representation developed in past studies is probably too coarse, but is the most likely candidate for modification of detail in critical areas.); validation of grid system hydraulically and for quality parameters

METHOD: This task will involve the use of nonsteady state models for the Bay to determine the transient effects of storm events on water quality. The model must also accommodate some other nonpoint sources as well as the discharge from point sources. In addition, the model should be available for use on the local level, as, for example, to analyze the effect of San Mateo County runoff on the shellfish off the San Mateo County shores. In other words, the model should be capable of use on both local and regional levels.

COORDINATION REQUIREMENTS: Storm water runoff model tasks; management plans; local (county) agencies

BUDGET: \$32,500

TASK: Run water quality model

PURPOSE: To run the water quality model to provide support for the development of management plans and the regional assessment tasks

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 7 to month 20

INPUT: Information from surface runoff model; point sources

MAJOR PRODUCTS AND EVENTS: Each run will provide output specifying transient responses of receiving water quality to point and surface runoff inputs.

METHODS: The model will be run with alternative input parameters. The model must be run throughout the preparation of the management plan. It will be run on demand from those persons responsible for management plans and those responsible for regional assessments. Therefore, a prime criterion for running the model would be rapid turn-around time.

COORDINATION REQUIREMENTS: In view of many options of storm runoff input and water quality model options, a bookkeeping system must be set up and maintained, showing the appropriate coordination. Contractor must have at least one person available to make runs at any time.

BUDGET: \$16,500

TASK: Transfer model capability to ABAG

PURPOSE: To transfer the capability for adaptation and use of the water quality model to the ABAG staff

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 17 to month 22

INPUT: Other modeling tasks

MAJOR PRODUCTS AND EVENTS: Installation of the water quality model, both hydraulic and quality computer programs on the ABAG computer; provision of a test data deck and appropriately stored storm runoff model to ABAG; provision of reproducible copies of documentation and a user's guide

METHOD: This is a key task and will occur late in the program. It should be the subject of a formalized training program. It would be desirable to have the transfer of model capability begin as early as possible, to the point of having key ABAG staff members participate in running the water quality model during the development of the Environmental Management Plan. One month of "hands'-on" training, using ABAG equipment will be provided, and will include necessary lectures, examples, and problems to fully train ABAG personnel in the use of the water quality model.

COORDINATION REQUIREMENTS: ABAG to provide lecture rooms, trainee personnel (not to exceed 6), and computer equipment and to set schedule

BUDGET: \$7,000

TASK: Coordinate with management plans and data collection

PURPOSE: To insure that persons responsible for the preparation of management plans and collection of data understand the relationship of their task to the water model

RESPONSIBILITY: Consultant

START AND COMPLETION DATE: Month 0 to month 2

INPUT: No specific inputs

MAJOR PRODUCTS AND EVENTS: Initially: A meeting of the water quality and stormwater runoff modelers, the water quality monitoring consultants, and the 208 (and water quality) coordinator to discuss needs and expectations

Ongoing: Liaison, performed by the 208 (or water quality) coordinator among the model development and operation tasks, the water quality monitoring tasks, and the surface runoff management plans to provide information for program development

METHODS AND COORDINATION REQUIREMENTS: As above, the model should also be coordinated with the task on the development of water quality objectives, as information must be developed by the model that is pertinent to the water quality objectives.

BUDGET: \$9,500

TASK: Coordinate storm runoff and water quality modeling

PURPOSE: To coordinate the activities of the model consultants for storm water runoff and water quality. This task is needed to insure that the outputs from the storm runoff models will be available in time to serve as inputs for water quality model studies.

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 17

INPUT: Tasks on surface runoff, tasks on water quality and storm runoff analytical procedures.

MAJOR PRODUCTS AND EVENTS: A schedule of water quality model runs will be developed early in the program. The schedule will be based upon storm water runoff model runs schedule as part of local agency work. The schedule will be changed as circumstances dictate.

METHOD: ABAG staff will meet with the water quality and storm water runoff model consultants to assist in developing an overall schedule of model runs. Continuous monitoring of both water quality and storm water runoff model runs will be maintained to insure compatibility with the previously developed schedule. Recommendations for changes in model run scheduling will be developed based upon results of model work accomplished in the program and upon requests by EMTF and advisory committees. These recommended changes will be forwarded to the model consultants so that appropriate schedule changes can be made.

COORDINATION REQUIREMENTS: Tasks on surface runoff, water quality and storm runoff analytical procedures, model consultants, local agencies, EMTF and advisory committees.

BUDGET: \$19,000

TASK: Establish model capability at ABAG

PURPOSE: To transfer the capability for use of the surface runoff model and water quality model to the ABAG staff.

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 17 to month 22

INPUT: Other model tasks

MAJOR PRODUCTS AND EVENTS: The surface runoff and water quality computer programs will be installed on computer available to ABAG, and a test data set provided. A card deck of the surface runoff model will be provided to ABAG. A copy, suitable for reproduction, of a user's guide for the surface runoff model will be provided.

METHOD: This is a key task and will occur late in the program. It should be the subject of a formalized training program. It would be desirable to have the transfer of model capability begin as early as possible, to the point of having key ABAG staff members participate in running the storm runoff model during the development of the environmental management plan. One month of "hand's-on" training, using ABAG equipment will be provided, and will include necessary lectures, examples, and problems to fully train ABAG personnel in the use of the surface water model.

COORDINATION REQUIREMENTS: ABAG to provide lecture rooms, trainee personnel (not to exceed 6), and computer equipment and to set schedule.

BUDGET: \$5,000

Water and Air Quality Analytical Procedures-Air Quality. Air quality simulation models will be used to predict air quality conditions under a variety of alternatives and to forecast the effectiveness of proposed control strategies. The context in which the models will be used is explained in the air quality maintenance plan part of the work program (in particular, under the task on prediction/forecasting and strategy analysis).

TASK: Develop input data

PURPOSE: To prepare data on air pollutant emissions for model input

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 0 to month 12

INPUT: Outputs from the land use and transportation model; stationary, mobile, and area sources of air pollution, covering both base year and future conditions

MAJOR PRODUCTS AND EVENTS: A gridded inventory of air pollutant emissions for input to simulation models providing spatial and temporal distribution of pollutants for each alternative to be tested

METHOD: MTC will give assistance in preparing the gridded vehicle emission; the BAAPCD will assist in preparing the stationary and area source emissions.

COORDINATION REQUIREMENTS: Close working relations with the BAAPCD and MTC in developing the data and ensuring format consistency with data from the transportation and land use models

BUDGET: \$8,500

TASK: Review and select models

PURPOSE: To evaluate and select air quality models for use in the control strategy analyses

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 2 to month 3

INPUT: Air quality models, especially those in use by BAAPCD, and MTC; information on model limitations, data requirements, and operational costs

MAJOR PRODUCTS AND EVENTS: Selection of air quality models for use in the Air Quality Maintenance Plan

METHOD: Criteria will be established for selecting the air quality models. These criteria will include availability, costs, accuracy, and applicability. Selection of the models will be based on these criteria.

COORDINATION REQUIREMENTS: BAAPCD and MTC

BUDGET: \$2,500

TASK: Prepare models for testing

PURPOSE: To set up the simulation models for air quality analyses

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION: Month 2 to month 4

INPUT: Air quality simulation models from previous tasks

MAJOR PRODUCTS AND EVENTS: Operational models for use in analyzing alternative control strategies, base year, and baseline conditions

METHOD: Simulation models will be set up on the computer; input data will be double checked; problem areas will be debugged.

COORDINATION REQUIREMENTS: BAAPCD and MTC

BUDGET: \$5,500

TASK: Calibrate models

PURPOSE: To insure that the air quality models are technically accurate and to simulate actual data as closely as possible

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 4 to month 6

INPUT: Data from the previous task and ambient air quality data

MAJOR PRODUCTS AND EVENTS: Air quality models which have been "tuned" to simulate actual data

METHOD: Using existing air quality monitoring data, model parameters will be adjusted to reproduce observed air quality as accurately as possible.

COORDINATION REQUIREMENTS: BAAPCD and MTC

BUDGET: \$5,500

TASK: Strategy analysis

PURPOSE: To evaluate the effectiveness of alternative control measures and strategies for improving air quality

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 5 to month 9

INPUT: Individual and combined control measures

MAJOR PRODUCTS AND EVENTS: A determination of the effectiveness of different control measures and strategies for improving air quality

METHOD: The impacts of proposed controls on transportation, land use, and population will be determined. The effects of these changes on stationary, mobile and area sources of emissions will be calculated and used as input to the models.

COORDINATION REQUIREMENTS: BAAPCD and MTC

BUDGET: \$5,000

TASK: Use models of assessment

PURPOSE: To continue and extend work from the previous task on strategy analysis

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 8 to month 12

INPUT: Results from the strategy analysis task; the impact of assessment procedures

MAJOR PRODUCTS AND EVENTS: A determination of the effectiveness of control measures that appear most promising for recommendation and implementation; regional maps of air quality improvements resulting from alternative scenarios

METHOD: Air quality modeling analyses will be conducted using the same procedure described in the previous task on strategy analysis.

COORDINATION REQUIREMENTS: BAAPCD and MTC; tasks on assessment procedures in all management plans to formulate strategies to be tested

BUDGET: \$14,000

TASK: Interpret model results

PURPOSE: To determine the effectiveness of alternative controls tested, and the impacts in different parts of the region

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 10 to month 14

INPUT: Results of the modeling efforts

MAJOR PRODUCTS AND EVENTS: Maps and summaries of projected air quality conditions for the alternatives and control strategies analyzed; summaries of projected air quality violations projected

METHOD: Analysis of modeling outputs and statistical procedures will be used to compute the frequency of air quality violations.

COORDINATION REQUIREMENTS: BAAPCD and MTC

BUDGET: \$3,000

TASK: Implications of model results for air pollution control policy

PURPOSE: To prepare an air pollution control policy based on modeling results

RESPONSIBILITY: ABAG, BAAPCD, MTC

START AND COMPLETION DATE: Month 10 to month 15

INPUT: Results from the air quality modeling analysis

MAJOR PRODUCTS AND EVENTS: Formulation of a regional air pollution control policy based on modeling results and results of the impact assessment tasks.

METHOD: Technical analyses, impact assessment results, and institutional analysis will be used to prepare air pollution control strategies.

COORDINATION REQUIREMENTS: BAAPCD and MTC

BUDGET: \$3,000

Assessment And Evaluation

This is the key regional supporting task. Assessment is the process of identifying and measuring the effects of employing a particular set of control measures. Evaluation is the process that describes which of the identified impacts are acceptable according to some standard (statutory technical, public acceptability) and which are not.

The task consists of the development of assessment procedures and the coordination of assessment procedures (such as mathematical models) developed or adapted in other tasks. This task also will develop techniques and information to be used by staff preparing management plans in their screening and assessment of alternative control measures. An initial assessment of the effects of components of the individual management plans is included in the development of each plan. This task also will develop techniques and information to be used by staff preparing management plans in their screening and assessment of alternative control measures. Its most critical use will be in the last six months of the study, when the management plans must be integrated, adjusted, and finally, their regional impacts assessed.

TASK: Confirm assessment and evaluation criteria

PURPOSE: To confirm a preliminary list of criteria on which assessment and evaluation will be based.

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month -2 to month 2

INPUT: Candidate control measures; quantification of air, water quality, solid waste goals and objectives; analysis and description of local policies; description of regional policies; information on preferences of citizens, EMTF

MAJOR PRODUCTS AND EVENTS: Lists of 1) measures for describing effects in terms of duration, location, and frequency; 2) Indicators for evaluating effects with respect to air quality objectives, water quality objectives, solid waste objectives, and impact on specified population and economic groups and institutions; 3) Indicators for evaluating feasibility of control measures with respect to public acceptability, political acceptability, and cost; 4) Criteria for evaluating effects with respect to local policies, regional policies, other state and federal requirements (Lists should be arranged to indicate at which planning level (i.e., local, subregional, areawide) particular criteria or measures would be applied.)

METHOD: Statutory objectives, existing environmental problems; local and regional policies, responses from citizens and local officials, information on institutional and financial arrangements and constraints will be reviewed. Based on analysis of these, it will be determined what information needs to be obtained from assessment process and at which jurisdictional level that information can most likely be obtained. Assessment and evaluation criteria will be reviewed to determine whether they are sufficient to provide information required at the necessary level of specificity.

COORDINATION REQUIREMENTS: Tasks on special studies, data base, institutional-financial mechanisms, water quality objectives, and citizen participation; Environmental Management Task Force and Program Review Board

BUDGET: \$16,000.

TASK: Describe candidate control measures

PURPOSE: To describe control measures to be considered by all management plans and to describe implementation measures appropriate for carrying them out

RESPONSIBILITY: ABAG

(This task will be further subdivided to develop control measures particular to each management plan.)

START AND COMPLETION DATE: Before month -2 to month 2

INPUT: Description of environmental problems to be addressed by geographic area; description of implementation techniques available; description of various measures available for addressing environmental problems; information on institutional and political constraints of particular measures or implementation techniques

MAJOR PRODUCTS AND EVENTS: 1) A list of control measures and the techniques for their implementation used to achieve air, water quality, and solid waste objectives indicating: specific problem to be addressed, types of situations in which measures would be appropriate in terms of relevant, geographic, hydrologic, demographic and other characteristics, potential constraints to its application, including public acceptability, legality, cost, etc., techniques that could be used for carrying out control measures, including criteria for identifying situations in which specific techniques are more appropriate than others; 2) lists of control measures and implementation techniques recommended for consideration by specific subregional and local agencies

METHOD: Lists of control measures and implementation techniques will be reviewed. Additional measures and techniques will be identified. Lists will be evaluated with respect to information on 1) area specific environmental problems, 2) local policies, 3) response from citizens, Environmental Management Task Force, etc., 4) institutional-financial constraints, and 5) costs. Criteria will be formulated for identifying situations in which specific types of measures and implementation techniques would be appropriate.

COORDINATION REQUIREMENTS: Management plans; tasks on institutional-financial mechanisms, citizen participation, water quality objectives, and data base

BUDGET: \$16,000.

TASK: Describe specific inputs to assessment procedures

PURPOSE: To provide early information to staff involved in development of management plans and analytical models to insure that control measures are described in terms that are applicable to assessment and evaluation criteria and that can be used as inputs to predictive techniques proposed for use

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 4

INPUT: Candidate control measures; assessment and evaluation criteria; information on preferences and concerns of citizens Environmental Management Task Force etc.; quantification of air, water quality, and solid waste goals and objectives; management plan work programs; data base work programs; modeling work programs

MAJOR PRODUCTS AND EVENTS: 1) Lists of specific data items needed to apply each of the proposed assessment and evaluation criteria 2) Lists of specific data inputs needed to activate each proposed analytical model

METHODS: Assessment and evaluation criteria will be reviewed and appropriate units of measurement for each will be identified. Predictive techniques will be reviewed to determine inputs necessary for utilization. Control measures will be reviewed to determine what information would be required on each in order to quantify effects in units identified, or as inputs required above.

COORDINATION REQUIREMENTS: All management plans and modeling programs, tasks on data base, institutional-financial mechanisms, and population, land use, employment

BUDGET: \$16,000

TASK: Develop assessment procedures

PURPOSE: To identify and develop procedures and techniques not covered in other tasks for identifying, measuring, and evaluating the effects of potential control measures at all jurisdictional levels

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 6

INPUT: Candidate control measures; assessment and evaluation criteria; description of existing conditions (environmental, social, economic, political, institutional); identification and description of impact areas to be considered in terms of: 1) relevancy to statutory objectives and requirements, 2) public acceptability and concerns, 3) political and institutional constraints, 4) regional policies, 5) local policies, 6) other state and federal requirements

MAJOR PRODUCTS AND EVENTS: 1) Technical memoranda detailing mathematical models and other analytical techniques that can be used to measure likely effects of individual control measures or combinations of control measures, and test effectiveness of mitigation measures or changes in strategies proposed to alter undesirable effects (These reports are to identify and describe various predictive techniques, provide criteria for determining their applicability in various types of situations, identify inputs necessary for each technique.); 2) reports detailing assessment and evaluation tasks to be carried out at local or subregional levels, including specification of types of effects to be identified and evaluated, measures, criteria, and indicators to be used to describe these effects; anticipated products; 3) reports detailing assessment and evaluation tasks to be carried out at regional level including inputs required from local and subregional process; types of effects to be identified and evaluated; measures, criteria and indicators to be used to describe effects; anticipated products

METHODS: Predictive techniques will be reviewed and their adequacy and applicability will be determined. Assessment methods and techniques will be developed as necessary to enable identification of all effects that should be evaluated. The capability of local or subregional entities to perform assessment tasks will be determined. Effects to be evaluated at each jurisdictional level and techniques appropriate for use will be identified.

COORDINATION REQUIREMENTS: Management plans; tasks on data base, institutional-financial mechanisms, population, land use, and employment, storm runoff modeling, water quality modeling, air quality modeling, public participation, the Environmental Management Task Force and the Program Review Board; study manager and administrators

BUDGET: \$38,000

TASK: Integrate assessment procedures into an assessment system

PURPOSE: To develop a system of integrated assessment procedures, including mathematical models and other analytic techniques, that will be the basic information generating system used for local and regional assessments and can be used on continuing basis to identify and evaluate effects of control measures proposed to implement EMP objectives

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 2 to month 6

INPUT: Candidate control measures, assessment and evaluation criteria, assessment procedures including mathematical models and other analytic techniques, data base program outputs

MAJOR PRODUCTS AND EVENTS: 1) Outlines and flow charts describing linkages between each potential control measure and each analytic technique (see task on using PLUM model for assessment) that would be used for assessing and evaluating its effects; 2) procedures and techniques for converting assessment and evaluation indicators into input for use by analytic models; 3) lists of required output of each analytic model required either for assessment and evaluation or for input into another analytic model

METHODS: Predictive techniques will be reviewed to determine inputs necessary for utilization. Available data inputs will be reviewed. Relationships between available data, types of inputs needed to activate models, and model outputs will be determined.

COORDINATION REQUIREMENTS: Model programs; tasks on data base, institutional-financial mechanisms, population, land-use, and employment

BUDGET: \$23,000

TASK: Operate assessment system

PURPOSE: To manage and operate an assessment system involving analysis, assessment, and evaluation at the local level and to integrate the products of that work with analysis, assessment, and evaluation carried out in the process of developing areawide management plans

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 13

INPUT: Projections of base case conditions without management plans against which changes resulting from implementation of control measures can be evaluated; control measures; assessment and evaluation criteria; assessment and evaluation procedures; data base; all modeling programs; management plans; tasks on institutional-financial mechanisms, integration of management plans; study management and administration; outputs from local assessment and evaluation

MAJOR PRODUCTS AND EVENTS: Reports and diagrams 1) showing potential measures for mitigating effects determined undesirable, and potential unavoidable adverse effects of alternative local surface runoff plans; 2) showing mitigation measures and unavoidable adverse effects of alternative areawide management plans for air quality, municipal wastewater, nonpoint sources, industrial discharges, water conservation, reuse and supply, and solid waste; 3) indicating the effects of alternative combinations of local surface runoff management plans, including mitigation measures and unavoidable adverse effects; 4) indicating alternative combinations of proposed regional management plans; 5) indicating preferred combinations of regional management plans and specifying mitigation measures and unavoidable adverse effects

METHODS: At the local level, condition changes and potential effects of alternative combinations of surface runoff control measures and implementation strategies will be identified and evaluated. Condition changes and potential effects of proposed combinations of control measures and implementation strategies will be identified and reviewed to determine steps to alter undesirable affects and to determine which effects are unavoidable.

Using output from local assessment, examinations will be conducted to determine condition changes and effects of different combinations of local runoff management plans.

Alternative areawide management plans for surface runoff, air quality, municipal wastewater, nonpoint sources, industrial discharges, water conservation, and solid waste will be assessed and evaluated.

Preferred areawide management plans will be assessed and evaluated; mitigation measures and unavoidable adverse effects will be identified.

COORDINATION REQUIREMENTS: Tasks in management plans; data base, modeling programs, integration of management plans, study management and administration, and institutional-financial; citizen and public agency involvement

BUDGET: \$155,000

TASK: Compile assessments

PURPOSE: To compile assessment and evaluation output for all management plans to reconcile inconsistencies and provide basis for documenting the process used to select preferred areawide strategies

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 16

INPUT: Reports detailing results of assessment and evaluation of local surface runoff plans and areawide management plans, comments from participating agencies, citizens and Environmental Management Task Force

MAJOR PRODUCTS AND EVENTS: Analysis, assessment and evaluations to be used by EPA in preparing assessment document for public and agency review in compliance with the National Environmental Policy Act and the California Environmental Quality Act

METHODS: Assessment and evaluation output from the preparation of alternative local surface runoff plans will be reviewed. Assessment and evaluation output produced at regional level for areawide management plans will be reviewed. Comments from participating agencies, the program review board, and the Environmental Management Task Force will be reviewed. Data inputs and plan outputs will be adjusted as necessary to reconcile inconsistencies. Draft reports and diagrams will be prepared to document the assessment and evaluation process and to identify mitigation measures and unavoidable adverse effects. ABAG will assist EPA staff in preparing the assessment document if required.

COORDINATION REQUIREMENTS: Tasks in data base, modeling programs, integration of management plans, study management and administration, report preparation; Program Review Board and the Environmental Management Task Force

BUDGET: \$23,000

TASK: Develop and describe continuing planning process with respect to assessment

PURPOSE: To describe aspects of the continuing planning process peculiar to assessment for review and eventual use by all agencies

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 15 to month 16-1/2

INPUT: Continuing planning process tasks description of the local continuing planning process; description of proposed regulatory programs for air quality, water quality, and solid waste management programs; review of current environmental impact procedures from the institutional and financial program; description of projection methods from the plan integration program

MAJOR PRODUCTS AND EVENTS: Identification of limitations imposed upon assessment and evaluation during the two-year planning period (time and cost, availability of assessment techniques, etc.); a report relating regional assessment to state and national legislation for environmental assessment and to current local practices; a critique of the limitations of current practices; the opportunities for and limitations on applying assessment procedures to regulatory and operational actions; draft procedures to be used as criteria for designating management agencies

METHODS: Limitations on the assessment program will be documented. Existing legislation will be reviewed; procedural and legislative problems will be identified, and a survey conducted on predictive techniques for operating agencies.

COORDINATION REQUIREMENTS: Continuing planning process, study management and coordination, institutional/ financial, and special studies

BUDGET: \$10,000

TASK: Evaluate Environmental Management Plan alternatives

PURPOSE: To evaluate the Environmental Management Plan alternatives to ensure compliance with program objectives

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 17 to month 19

INPUT: Regional assessment, public and agency comments

MAJOR PRODUCTS AND EVENTS: For each management plan, a report on the advantages, disadvantages, costs, and consequences of alternative problem solutions to be presented to the Environmental Management Task Force for resolution

METHODS: For each management plan, previous actions by the Environmental Management Task Force, comments and actions by other agencies, other public comments and reactions, and remaining unresolved issues will be summarized. For each management plan alternative solutions or approaches to resolving the remaining issues will be described. Based on the regional assessments, the costs, consequences, advantages and disadvantages for each alternative will be discussed. This information will identify relationships between control measures and strategies for solving environmental problems. Previous actions by the Environmental Management Task Force will be examined for consistency of assumptions.

The above will be presented to the Environmental Management Task Force for guidance and action. Choices, mitigation measures, and impacts will then be described in final assessment document.

COORDINATION REQUIREMENTS: BAAPCD, MTC, ARB, SWRCB, RWQCB

BUDGET: \$40,000

Institutional/Financial Analysis

This group of tasks is concerned with one of the most important aspects of the areawide waste treatment management program -- the identification and analysis of candidate institutional and financial arrangements. These are the mechanisms on which the implementation of the Environmental Management Plan will depend. These tasks are for the most part supportive; institutional and financial options developed here will be incorporated in the management plans.

ABAG will work closely with local lead agencies. The lead agency in each county will be requested by ABAG to collect information during the first several months of the program on municipal, county, and special district environmental management responsibilities. ABAG will coordinate this effort among the counties and provide the regional, state, and federal perspectives in the environmental management system. This cooperation phase will be extended through the planning period and into the implementation phase so that all affected interests have an opportunity to contribute to the planning process.

ABAG, with the assistance of a consultant, will also define the range of available institutional and financial options. A subset of this list will become the measures recommended in the Environmental Management Plan.

Work products stemming from the above tasks will be used to evaluate the current institutional and financial system and its ability to carry out such control measures as may be proposed. Based on this evaluation, personnel involved in these tasks will be in the best position to assist in formulating institutional and financial alternatives for incorporation into the management plans. New structures, including those involving an expanded regional role, will be proposed where desirable. Finally, institutional and financial aspects that are to receive attention during the continuing planning process will be described.

TASK: Describe the present institutional/financial system

PURPOSE: To assemble information on current institutional arrangements and financing mechanisms responsible for environmental management in the nine-county area and to prepare a technical memorandum on the subject

RESPONSIBILITY: ABAG

START AND COMPLETION DATES: Month 0 to month 6

INPUT: Information from local lead agencies on environmental management institutional and financial responsibilities at the county, municipal, and special district level (Products from this task will be part of the final technical memorandum.)

MAJOR PRODUCTS AND EVENTS: A technical memorandum that will include:

- o an identification of all relevant environmental management institutions operating in the nine Bay Area counties, including general purpose governments at all jurisdictional levels and special districts
- o for each institution identified above, a description of its organizational structure, currently operating environmental management functions, legally enabled authorities, operational financing instruments and capabilities, etc.
- o a discussion of the process by which each institution functions and interacts with others in the overall institutional context of the region
- o an identification and description of institutional and financing mechanisms available to environmental management agencies for implementing control measures that may be identified in the individual management plans

METHOD: Relevant environmental management institutions and the types of information required about each will first be identified. Subsequently, local lead agencies, as described elsewhere in the work program, will assist ABAG in collecting this information. Collection procedures may consist in assembling legal constructs, and interviewing key officials. The technical memorandum will then be prepared using this information as comprehensive and useful as possible in each of the management plans.

COORDINATION REQUIREMENTS: Local data collection, management plans

BUDGET: \$25,000

TASK: Describe institutional/financial options for implementing control measures

PURPOSE: To develop a technical memorandum listing and describing the candidate institutional options and financing mechanisms that each management plan will select from to implement the control measures

START AND COMPLETION DATES: Month 2 to month 6

RESPONSIBILITY: ABAG and consultant

INPUT: Candidate control measures developed during the first two months of planning; descriptions of the current institutional/financial system for environmental management

MAJOR PRODUCTS AND EVENTS: A technical memorandum describing institutional and financial options for implementing the previously defined candidate control measures

METHOD: Institutional mechanisms, such as joint powers agreements and contractual arrangements, can be applied to existing structures to define a number of institutional options. Ordinances can be proposed to create new institutional vehicles. The existence of various revenue generating possibilities will be highly important to the implementation of control measures. After the range of control measures has been established, ABAG staff, with consultant assistance, will review existing literature and other sources in the field in order to identify the candidate institutional and financial options for implementation.

COORDINATION REQUIREMENTS: Description of candidate control measures, management plans

BUDGET: \$20,000

TASK: Evaluate existing system regarding implementation of control measures

PURPOSE: To analyze and evaluate current institutional arrangements and financing mechanisms with respect to their ability to incorporate the control measures identified under the separate management plans

RESPONSIBILITY: ABAG

START AND COMPLETION DATES: Month 6 to month 10

INPUT: Candidate control measures from each management plan; the description of present institutional arrangements and financing mechanisms from this series of tasks

MAJOR PRODUCTS AND EVENTS: A technical memorandum, accessible to all planning participants, evaluating the ability of the current system to incorporate control measures generated by the management plans; identification of all agencies with enabling legislation authorizing them to administer a given control measure; identification of gaps where there are no vehicles for particular control measures; discussion of the degree to which institutional interaction can affect the implementability of given control measures; specification of points in the institutional framework where new enabling legislation might be desirable

METHOD: This task will involve the comparing existing authorities with proposed control strategies. This comparison will be based on the ability of present institutional entities and arrangements, in concert with existing financing mechanisms, to incorporate the control measures developed in the management plans.

COORDINATION REQUIREMENTS: All management plans

BUDGET: \$10,000

TASK: Provide institutional and financial support to management plans

PURPOSE: To formulate specific institutional arrangements and financing strategies to implement the proposed control measures

RESPONSIBILITY: ABAG

START AND COMPLETION DATES: Month 6 to month 13

INPUT: Candidate control measures developed in the various management plans; under each management plan identifying institutional and financial implementation measures; technical memoranda developing out of institutional/financial work

MAJOR PRODUCTS AND EVENTS: Alternative institutional arrangements and financing mechanisms for implementing the control measures specified in each management plan (However, because the present task is a supportive one, these outputs will actually be located within the separate management plans. This task will bridge the gaps between several different management plans, and therefore can give attention to their eventual integration.)

METHOD: Previous and ongoing work will concern the compatibility of proposed control measures with the current institutional/financial options. In this task, criteria will be developed to indicate which current structures and options should be incorporated into the management plans. These criteria will be "solution-oriented" so that the most feasible arrangement of institutions and financing tools can emerge. Attention will be given to intra-plan as well as inter-plan implications of proposed institutional and financial strategies. Finally, the operation of the assessment and evaluation system described elsewhere in the work program, may indicate where revisions are desirable, and thus the two efforts will be closely coordinated.

COORDINATION REQUIREMENTS: All management plans, assessment and evaluation tasks; the Environmental Management Task Force

BUDGET: \$33,000

TASK: Develop regional institutional and financial measures where desirable

PURPOSE: To develop alternative institutional and financial measures for regional participation in the environmental management program

RESPONSIBILITY: ABAG

START AND COMPLETION DATES: Month 14 to month 19

INPUT: Final integration process; the management plans described elsewhere in the work program

MAJOR PRODUCTS AND EVENTS: Candidate regional mechanisms for implementing the environmental management process

METHOD: The plan integration process, assisted by prior institutional/financial efforts, may reveal the desirability for regional implementation of some aspects of the plan. Candidate regional institutional roles and financing measures will be identified based on such needs as defined by plan integration.

COORDINATION REQUIREMENTS: All management plans; tasks on plan integration and administration, assessment and evaluation, and citizen participation; the Environmental Management Task Force

BUDGET: \$18,000

TASK: Describe institutional and financial aspects of the continuing planning process

PURPOSE: To specify the institutional and financial components of the continuing planning process; which will define the process for resolving issues and implementing solutions identified during the two-year planning period

RESPONSIBILITY: ABAG

START AND COMPLETION DATES: Month 14 to month 19

INPUT: All prior institutional and financial work

MAJOR PRODUCTS AND EVENTS: A description of the process whereby the institutional and financial strategies emerge from the two-year effort; a discussion of institutional and financial concerns where the two-year planning period was insufficient to develop adequate control measures

METHOD: This task will be a function of the overall continuing planning process task.

COORDINATION REQUIREMENTS: Continuing planning process

BUDGET: \$15,000

PUBLIC PARTICIPATION

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PUBLIC PARTICIPATION

Public participation in the EMP program will be used to ensure active public participation to the fullest extent possible -- consistent with the requirements of the Federal Water Pollution Act, as amended (P.L. 92-500), and with the requirements of the Clean Air Act of 1970. Guidelines prepared by the U. S. Environmental Protection Agency state:

"The success of a 208 plan depends on its acceptance by affected units of local government. It is important that the general public in the 208 area be actively involved in plan development and that public participation in the later management phase of the plan be encouraged. Due to the complexity of the 208 planning, it is necessary to provide a structured program of public involvement to assure adequate exchange of information and opinion between the public and the planning agency."

Similarly, proposed Federal requirements for Air Quality Maintenance Plans (40 FR49057 Oct. 20, 1975) state there must be: "assurances that there will be adequate provision for participation of the public in the development of the plan."

The objectives of public participation are:

- 1) to increase awareness of the needs for abatement and prevention of air, water and solid waste pollution;
- 2) to promote information exchange among the public, elected officials and planners as regional and local issues in environmental planning are identified;
- 3) to identify environmental conflicts among the concerned interests and to ensure that the conflict resolution process is conducted openly;
- 4) to build confidence and commitment to the final plan through frank and open interaction among elected officials, planners and special and public interest groups;
- 5) to increase the understanding of air and water quality and solid waste management issues, as parts of an overall environmental management program.

Legal requirements for public participation are contained in the Act, described above, and in Part 105, Subchapter D, Chapter 1, CFR, Title 40, of the E.P.A. regulations titled "Public Participation in Water Pollution Control":

"Participation of the public is to be provided for, encouraged, and assisted to the fullest extent practicable consistent with other requirements of the Act in Federal and State government water pollution control activities. The major objectives of such participation include greater responsiveness of governmental actions to public concerns and priorities, and improved popular understanding of official programs and actions. Although the primary responsibility for water quality decision-making is vested by law in public agencies at the various levels of government, active public involvement in and scrutiny of the intergovernmental decision-making process is desirable to accomplish these objectives. Conferring with the public after a final agency decision has been made will not meet the requirements of this part. The intent of these regulations is to foster a spirit of openness and a sense of mutual trust between the public and the State and Federal agencies in efforts to restore and maintain the integrity of the Nation's waters."

Legal requirements of the Clean Air Act (42 USC 1857 et seq) state:

. . . any person may commence a civil action on his own behalf-(1) against any person (including (i) the United States, and (ii) any other governmental instrumentality or agency . . .) who is alleged to be in violation of (A) an emission standard or limitation . . . or (B) an order issued by the Administrator or a State with respect to such a standard or limitation, or (2) against the Administrator where there is alleged a failure of the Administrator to perform any act or duty which is not discretionary with the Administrator.

In general, the public participation effort in the San Francisco Bay Area Environmental Management Plan program will be characterized by a collaborative approach with elected officials and professional staffs working in cooperation with the various public involved. This approach will emphasize making environmental decisions with the public - rather than for them, and will provide for public participation at both local and regional scales of involvement.

Overall, the public participation program will:

1. Provide a decentralized public participation structure to ensure that local as well as regional air, water and solid waste pollution issues are addressed.
2. Include all sectors of the public.
3. Generate active public participation during the planning process, and means for public involvement in decisions as the program proceeds.
4. Develop public support and commitment to the EMP, including the implementation and monitoring aspects of the program.
5. Provide for periodic reviews of implementation programs by the public, and the means to appeal implementation and management decisions.
6. Provide a direct linkage between regional and local participation programs.

An extensive public information program will be undertaken by ABAG to describe the planning program, and to keep the public informed about the planning process. This program will take the form of video and other media presentations -- mailings, newsletters, films, exhibits, speakers, information depositories, publications, workshops, surveys, public presentations, and informal contacts with groups and individuals.

The public participation program will be monitored and evaluated for its effectiveness as it proceeds to ensure that desired levels of participation are achieved. The program will be revised to remedy any deficiencies that may occur.

The EPA planning guidelines divide the public into three general sectors, whose interests must be equitably balanced during the planning process. The three sectors are:

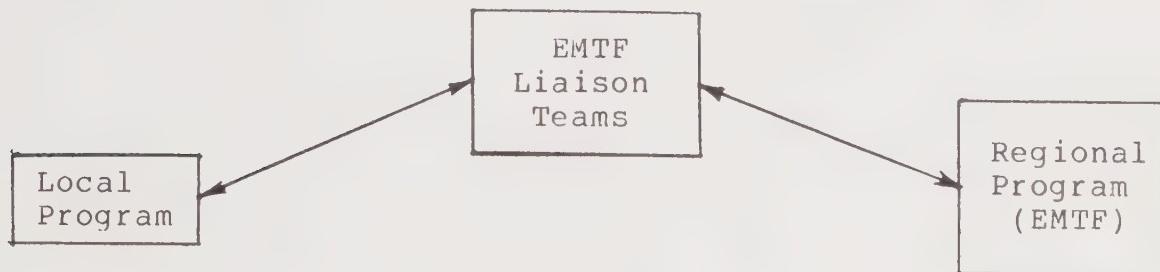
1. Type I, comprised of government institutions and pollutant dischargers; those directly responsible for air, water and solid waste pollution control.
2. Type II, comprised of special and public interest groups and opinion leaders, including conservation and environmental groups, academics, professional societies, and others.
3. Type III, comprised of the general public.

The structure designed for the ABAG Environmental Management Plan public participation program links local citizen participation interests with a regional task force that is comprised

primarily of institutional (Type I) and special and public interest group representatives (Type II).

The link between local and regional participation organizations will be Environmental Management Task Force Liaison Teams, comprised of representatives appointed from ABAG's Environmental Management Task Force. These teams will work with the lead agencies, and local citizen groups in each county.

Local participation programs will be developed by ABAG and/or lead agencies within guidelines established by ABAG. Local participation programs will be supported by ABAG and a public information program. In a number of Bay Area counties this may involve a coalition of existing citizen participation organizations and programs under the direction of a selected county local lead agency. In others, new programs may have to be established with ABAG's assistance to meet EPA 208 requirements. Where specific local issues arise during the planning process, special local task forces or study groups may be given special assignments related to these issues.



EMTF LIAISON TEAMS LINK LOCAL AND REGIONAL PROGRAMS...

The public participation program will serve as the mechanism whereby information about the planning process is distributed to the public, and whereby public suggestions and concerns are communicated to those developing the environmental management plan. Public participation will be continuous throughout the planning process. In addition, there are five areas where public participation is an essential part of the planning process. Public comments will assist in the work of each of these areas:

1. Work Program Formulation
2. Assessment Criteria
3. Problems and Projections
4. Assessment of Management Plan Alternatives
5. Recommended Management Plan and Continuing Planning Process

The following tasks describe the work to be accomplished in the public participation program. The budget for the local and regional efforts is \$345,000.

TASK: General regional public participation

PURPOSE: To insure active public participation at the regional level throughout the two-year planning period

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 24

INPUT: Products from planning programs: work program, assessment criteria, identification and listing of problems and projections, management plan alternatives, recommended management plan and continuing planning process

MAJOR PRODUCTS AND EVENTS: The regional public participation program will emphasize:

- o An outreach program designed to bring information about the program to all sectors of the Bay Area public
- o A feedback program designed to solicit public ideas, suggestions, needs and concerns regarding water and air quality, and solid waste management

METHOD: A variety of specific tools will be used, including:

Outreach Program

Newsletter (e.g. articles in ABAG's Bay View)

Audio Visual Presentation

 -- Plan Alternatives

 -- Draft Environmental Management Plan

Media Programs (Radio/TV)

Depository Libraries

Meeting Notices for Discussions, Workshops

Newsreleases and Public Service Announcements

Fact Sheets

Brochures

Summary Reports

Feedback Program

Correspondence

Informal Contacts

Liaison with Citizen Groups

Public Meetings

Workshops

Questionnaires

COORDINATION REQUIREMENTS: Extensive coordination will be required between the ABAG regional program, the local county programs, and the liaison teams of the Environmental Management Task Force. Several methods will be used to integrate citizen participation into the planning process and to insure adequate feedback from these individuals and groups: reports from the local lead agencies on their public involvement efforts; feedback from the activities of the Environmental Management Task Force liaison teams in each of the counties; creation of EMTF task force sub-committees made up of representatives of the liaison teams to advise and guide the public participation; formal and informal reports by ABAG to the task force and the public; and continuous interaction of planning staff with the public during the planning process.

BUDGET: \$160,000

TASK: Public participation in work plan formulation

PURPOSE: To organize the public participation program and to solicit participation in refining the work program

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Definition of other work program tasks

MAJOR PRODUCTS AND EVENTS: Identifying initial participants; establishing communication channels; informing the public of ABAG's role in developing an environmental management program; assessing public awareness of and attitudes toward environmental quality issues; promoting greater confidence among public agencies about ABAG's responsiveness to their needs; informing the region and requesting comments about the scope and nature of the Environmental Management Task Force planning process;

METHOD: ABAG will work directly with local governments and lead agencies in each county. The program will include:

- o development of a mailing list to identify interested and potential participants to continue throughout the project
- o news media releases to announce the initial steps in the environmental management planning process, the area covered, the staff responsible, and other relevant information
- o mailings to distribute information about the program and to request comments
- o publication of relevant data about the existing environmental conditions in the San Francisco Bay Area
- o public meetings to explain the planning process and to solicit expression of attitudes about the work program and the environmental issues it is concerned with
- o a statement describing what the program can and cannot do
- o interviews with key individuals to obtain their views about the program

COORDINATION REQUIREMENTS: Members of the EMTF will be appointed to liaison teams to work with ABAG staff and lead agencies in each county to organize local public participation programs and to establish procedures and channels of communication

BUDGET: \$10,000

TASK: Public participation in assessment criteria

PURPOSE: To seek public comments while formulating criteria to plan alternatives

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 3

INPUT: Products from planning program related to the development of assessment criteria

MAJOR PRODUCTS AND EVENTS:

- o depositories (perhaps at the central public libraries in each county or major jurisdiction), to provide convenient access to technical reports and materials
- o newsletter (as part of the existing news publication Bay View) to communicate with interested groups and individuals, and to remind them of the environmental management planning process
- o speeches to explain the issues to be considered
- o public meetings to explain the assessment criteria and alternative proposals under consideration and to receive feedback from the public and participants
- o liaison with interested groups including but not limited to environmental groups

METHOD: Previous techniques will be continued

COORDINATION REQUIREMENTS: Regular meetings of liaison teams to provide comments on proposed assessment criteria

BUDGET: \$20,000

TASK: Public participation in base projections and problems

PURPOSE: To provide the public with opportunities to comment on base case projections (e.g., population, land use, and transportation) and other environmental problems

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 10.

INPUT: Planning and technical products, including the results of studies of environmental management issues and initial population projections

MAJOR PRODUCTS AND EVENTS: Identification of public views on such issues as:

- o the importance of solid waste and air and water quality issues in relation to other community goals.
- o water quality, air quality, and solid waste management.
- o growth and conservation
- o local vs. regional management of air and water quality and solid waste programs
- o technological and institutional innovations in environmental management
- o projected impacts of the Environmental Management Plan, what choices must be made, and what assessment criteria should be
- o the direct costs of environmental management programs and their social and economic impacts

METHOD: Previous techniques will be continued

COORDINATION REQUIREMENTS: Regular meetings of the Environmental Management Task Force liaison teams to provide comments on the above issues

BUDGET: \$20,000

TASK: Public participation in management plan alternatives

PURPOSE: To present preliminary economic, social, and environmental impact assessments of each of the alternatives being considered to the public and to solicit responses from the public

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 20

INPUT: Major products from planning program

MAJOR PRODUCTS AND EVENTS: Public meetings, media presentations, and publications describing the alternative environmental management plans

METHOD: Previous techniques will be continued. New techniques to be used are:

- o interviews and informal contacts with officials and opinion leaders, to obtain their responses to alternatives under consideration (Special efforts will be made to obtain the reactions of those most affected by the plan.)
- o workshops to evaluate the impacts of various alternatives using evaluation criteria established in earlier stages of the planning process

COORDINATION REQUIREMENTS: Environmental management planning is but one aspect of community planning. It is therefore important to consider the compatibility of air, water and solid waste pollution control with community goals

Public views must be solicited on the compatibility of various air, water and solid waste pollution control approaches (municipal and industrial source control, urban development and land management control for point and nonpoint sources, and control of residual waste) with other community goals

Public views concerning the impact of pollution control measures on the nature, timing, rate, and location of development and growth policies (particularly housing, industrial, commercial, transportation, open space, resource recovery and recycling) will be critical in determining the suitability of such approaches. Public reaction to possible management alternatives of the plan will be solicited

BUDGET: \$15,000

TASK: Public participation in the Environmental Management Plan and in the establishment of a continuing planning process

PURPOSE: To insure public involvement in the formulation of the Environmental Management Plan; to solicit assistance in the establishment of a continuing planning process

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 24

INPUT: Major planning programs products, including financial and institutional arrangements necessary for environmental management

MAJOR PRODUCTS AND EVENTS: Elected officials to be made aware of public comments and opinions; in the continuing planning process, mechanisms to be developed to insure public participation in:

- o planning for waste treatment projects, ordinances, and institutional arrangements
- o periodic updating of the program
- o monitoring progress under the program

METHOD: For plan selection, previous techniques will be continued, with emphasis on:

- o public hearings and meetings
- o informing the public through the news media
- o speeches highlighting the effects and importance of the decisions

For the continuing planning process, it will be necessary to assess whether participation processes will remain the same. It must be decided whether local advisory and regional groups should be convened

- o whenever new individual facilities project requests are received
- o when any major modification of the program is necessary
- o during annual facilities budget reviews
- o for an annual review and evaluation of progress under the program

Other phases of implementation where public involvement may be particularly constructive will be identified. These may include:

- o facilities planning required for plan implementation and the raising of revenue for the facilities
- o the creation or modification of air and water quality and solid waste standards and the issue of permits required for pollution sources in the area
- o the monitoring of pollution sources and the development of technical standards for new pollution sources

COORDINATION REQUIREMENTS: During plan selection, emphasis will be placed on the Environmental Management Task Force liaison teams and on the involvement of those agencies responsible for implementing the management plan. Channels will be provided for public participation organizations to appeal decisions on programs and facilities to regional, state, and federal agencies. Channels to appeal omissions of actions included in the Environmental Management Plan will also be provided

BUDGET: \$15,000

TASK: Monitoring and evaluation of public participation programs

PURPOSE: To monitor and periodically evaluate the participation program

RESPONSIBILITY: ABAG and local lead agencies

START AND COMPLETION DATE: Month 0 to month 24

INPUT: Major products from public participation programs at both regional and local levels

MAJOR PRODUCTS AND EVENTS: A "participation log" of:

- o public contacts with the planning agency, including written requests for information or technical assistance, volunteering of information and follow-up actions needed and taken
- o meeting and hearing attendance, and the nature of the statements (logged as to groups or viewpoints represented, size of representation, preferences expressed, issues remaining to be settled, and need for further contact)
- o public-sponsored participation events, such as public meetings, workshops, and group liaisons, (logged as to number and characteristics of participants, outcome of event, follow-up action, and effectiveness of method)
- o Media coverage, as indicated by the clipping file, and monitoring of broadcast media

Monitoring to be a regular in-house activity of the planning agency; results of monitoring to be routinely passed to agency staff and to advisory group members

METHOD: Periodically evaluations will be conducted to determine the effectiveness of the public participation program in terms of:

- o the knowledge and understanding of the Environmental Management Plan program, the environmental quality issues in the region, and the alternatives under consideration
- o the attitudes toward institutional and technological innovation in environmental quality management
- o the accessibility and responsiveness of regional decision-making in environmental quality matters

- o the sources of information on environmental quality matters
- o the adequacy of information available on air and water quality and on solid waste matters
- o attendance at public hearings, meetings, and exhibits, or other involvement with environmental management activities
- o suggestions for change or improvement in public participation methods

COORDINATION REQUIREMENTS: Findings will be reported to staff, advisory groups, and decision-makers who will then evaluate the public participation program. Results of the monitoring and evaluation will provide the basis for the summary of Participation required by the regulations of the Administrator of the Environmental Protection Agency. Major issues raised in the public participation program, and the response to these issues will be documented as part of this summary

BUDGET: \$20,000

TASK: Local public participation program

PURPOSE: To provide opportunities for the public to participate in local environmental management programs and to link the activities to the regional program

RESPONSIBILITY: Local (county) agencies and ABAG

START AND COMPLETION DATE: Month 0 to month 24

INPUT: In some counties, local lead agencies will be responsible for establishing and maintaining an effective public participation program. In others, ABAG may assume this responsibility. ABAG will assist local lead agencies in their public participation programs. Lead agencies will be required to provide staff to implement the public participation program

ABAG planning and technical staff will be available as resource personnel for public meetings to describe current planning issues and to receive public comments

ABAG's public information program will focus on regional issues of this and other water and air quality programs, on general background and information concerning the program, and on regional water and air quality management alternatives and impacts. Local agencies will be responsible for public information programs dealing with particular local issues and alternative plans

MAJOR PRODUCTS AND EVENTS: Before beginning the work, the lead agency will submit a public participation work plan to ABAG for approval. This work plan will include:

- o a description of the proposed participation program and organization, including methods of participant selection
- o a description of the public participation methods to be employed
- o specific tasks and their relation to the planning steps described in the regional program
- o a description of processes that will insure active participation during the implementation and management phase
- o a description of the monitoring and evaluation process.

- o a description of the compatibility of the proposed local program with the regional program and the relationship of the public to local and regional decision-makers
- o a description of proposed staffing, budget and support services for the local public participation program

METHOD: The organizational arrangements chosen to provide local public participation will be a matter of local discretion. However, they must:

- o provide clearly defined channels to encourage contacts between citizens and policymakers - both local and regional
- o define responsibility for carrying out public involvement activities
- o provide adequate resources for public participation throughout the planning process
- o be responsive to all interested citizens, but not be dominated by any single interest group

COORDINATION REQUIREMENTS: Regional and local public participation programs will have to be linked, but variations in local programs must be allowed. Although a number of institutional arrangements may meet EPA's public participation requirements, a formal mechanism to insure maximum citizen understanding and approval of the selected plan will probably be necessary, given the complexity of areawide air and solid waste water management

In addition, current regulations and guidelines of the EPA and other public agencies for public participation in air and water quality and solid waste programs must be met the following should be viewed as a minimum toward meeting public participation requirements:

- o Informational materials on policy, program, and technical information shall be provided at the earliest practicable times and at places easily accessible to interested or affected persons and organizations so that they can make informed and constructive contributions to governmental decision-making. Technical information and all other informational material will be distributed to all regional depositories established for this purpose. News releases, newsletters, and other publications may be used. Special efforts shall be made to summarize complex technical materials for public and media use.

- Assistance to the public, technical and informational, shall be provided for citizen education, community workshops, training, and dissemination of information to communities. Requests for information shall be handled promptly
- Consultation arrangements shall be made for exchange of views with interested or affected persons and organizations on development or revision of plans, programs, or other significant actions prior to decision-making. Advisory groups, ad hoc committees, or workshop meetings may be used
- Notification of interested persons and organizations shall be ensured through maintenance of a current list of those interested within ABAG's geographic area, to be used for periodic distribution of informational materials, and by compliance with requirements for public notice, supplemented with informal notice to those having requested it, for public hearings
- Access to information shall be provided through one or more central public collections or depositories of pertinent air and water quality and solid waste reports and data (grant and permit applications, permits, effluent discharge information, and compliance schedule reports), along with copying facilities at reasonable cost
- Enforcement of air, water and solid waste pollution control laws shall be facilitated through encouraging public effort in reporting violations, developing and publishing procedures for receiving and considering evidence submitted by citizens, and investigating promptly alleged violations
- Legal procedures shall be open to the public, in the form of full information, subject to court requirements and limitations of the conduct of the litigation; and EPA actions shall be consistent with the Statement of Policy of the Department of Justice regarding opportunities for public comment prior to judgments enjoining pollution dischargers
- Rule making shall be opened to public scrutiny through public hearings, consideration of written comments from interested or affected persons or organizations, distribution of notices or proposed rule makings, and availability of texts of proposed and final rules

BUDGET: \$85,000 (Approximately \$10,000 per county)

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PLAN INTEGRATION AND ADMINISTRATION

The Environmental Management Plan for the San Francisco Bay region will include but not be limited to the areawide wastewater management plan as set forth in Section 208 of the Federal Water Pollution Control Act Amendments of 1972, the air quality maintenance plan prepared pursuant to the Clean Air Act of 1970, and a solid waste plan.

The wastewater management plan will consist of plans for surface runoff, municipal wastewater facilities, other nonpoint sources, industrial discharges, and water conservation, reuse, and supply. The surface runoff management plan will be an integration of eight subregional management plans. The air quality maintenance plan will include programs for controlling stationary and automobile-related sources of air pollution. The solid waste plan will include programs for managing municipal wastes, hazardous wastes, and residuals (sewage sludge).

ABAG will integrate the management plans into one regional environmental management plan, with guidance from the Environmental Management Task Force, for adoption by the appropriate regional and state agencies. Plan integration procedures will be refined both by a subcommittee of the EMTF and technical advisory committees. During the first fourteen months of the program, ABAG will coordinate the preparation of the management plans (eight subregional surface runoff plans, plus six other management plans). It will also identify policy issues that should be taken to the Environmental Management Task Force or its subcommittees for review, and technical issues that should be referred to technical advisory committees for study.

In months 15 through 20, these management plans will be compiled, inconsistencies between the plans will be resolved, plans will be adjusted, alternative regional plans will be assessed, and a final draft plan will be produced.

In the last four months of the two years, comments on the plan will be received, and the plan will be certified or adopted by regional and state agencies.

Plan Integration and Administration-General. The following tasks describe the general administration of the management plans.

TASK: Organize and coordinate surface runoff management plan development

PURPOSE: To organize and coordinate the development of the surface runoff plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Organize plan development - month -2 to month 1; coordinate plan development - month 1 to month 14

INPUT: Environmental management work program; progress reports submitted by other agencies and contractors; individual management plans; special studies; data base; and regional supporting services

MAJOR PRODUCTS AND EVENTS: The detailed work program and the plan to be outlined for use by local agencies in preparing local surface runoff plans; preparation of the eight subregional plans to be monitored for consistency with the approved work program; issues to be submitted to the Environmental Management Task Force or its subcommittees when policy guidance is needed

METHOD: Progress by participating agencies and contractors will be reviewed and evaluated for consistency with the work program and procedures and formats suggested by ABAG. The Environmental Management Task Force and its subcommittees will be informed of progress

COORDINATION REQUIREMENTS: All tasks related to surface runoff

BUDGET: \$20,000

TASK: Organize and coordinate air quality maintenance plan development

PURPOSE: To organize and coordinate the development of the air quality maintenance plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Organize plan development - month -2 to month 1; coordinate plan development - month 1 to month-14

INPUT: Environmental management work program, progress reports submitted by other agencies and contractors, individual management plans, data base, and regional supporting services

MAJOR PRODUCTS AND EVENTS: Memorandum of understanding or joint powers agreements to be developed with other agencies such as BAAPCD and MTC to form a "joint technical staff" in order to develop the air quality maintenance plan; preparation of the plan to be monitored for consistency with the approved work program; issues to be submitted to the Environmental Management Task Force or its subcommittees when policy guidance is needed

METHOD: Progress by participating agencies and contractors will be reviewed for consistency with the work program and procedures and formats suggested by ABAG. The Environmental Management Task Force and its subcommittees will be informed of progress

COORDINATION REQUIREMENTS: All tasks related to air quality

BUDGET: \$5,000

TASK: Organize and coordinate municipal, industrial, and nonpoint source management plan development

PURPOSE: To organize and coordinate municipal, industrial, and nonpoint source plan development

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Organize plan development - Month -2 to month 1; coordinate plan development - month 1 to month 14

INPUT: Environmental Management Work Program; individual management plans; special studies; data base; and regional supporting services

MAJOR PRODUCTS AND EVENTS: A detailed work program outline for the management plans to be developed; preparation of the plans to be monitored for consistency with the approved work program; issues to be submitted to the Environmental Management Task Force or its subcommittees when policy guidance is needed

METHOD: Progress will be reviewed and evaluated for consistency with the work program and procedures and formats. The Environmental Management Task Force and its subcommittees will be informed of progress.

COORDINATION REQUIREMENTS: All tasks related to municipal, industrial, and nonpoint sources

BUDGET: \$10,000

TASK: Organize and coordinate water conservation, reuse, and supply management plan development

PURPOSE: To organize and coordinate water conservation, reuse and supply plan development

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Organize plan development - month -2 to month 1; coordinate plan development - month 1 to month 14

INPUT: Environmental management work program; progress reports submitted by other agencies and contractors; individual management plans; data base; and regional supporting services

MAJOR PRODUCTS AND EVENTS: A detailed work program and plan to be outlined for use by consultants in preparing the plan; preparation to be monitored for consistency with the approved work program; issues to be submitted to the Environmental Management Task Force or its subcommittees when policy guidance is needed

METHOD: Progress by participating agencies and consultants will be reviewed and evaluated for consistency with the work program and procedures and formats suggested by ABAG. The Environmental Management Task Force and its subcommittees will be informed of progress.

COORDINATION REQUIREMENTS: All tasks related to water conservation, reuse, and supply

BUDGET: \$8,000

TASK: Organize and coordinate solid waste management plan development

PURPOSE: To organize and coordinate solid waste plan development

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Organize plan development - month -2 to month 1; coordinate plan development - month 1 to month 14

INPUT: Environmental management work program; individual interim plans for municipal, hazardous, and residual wastes; special studies; data base; and regional supporting services

MAJOR PRODUCTS AND EVENTS: Detailed work program and plan to be outlined; the preparation of the interim plan to be monitored for consistency with the approved work program; issues to be submitted to the Environmental Management Task Force or its subcommittees when policy guidance is needed

METHOD: Progress will be reviewed and evaluated for consistency with the work program and procedures and formats. The Environmental Management Task Force and its subcommittees will be informed of progress.

COORDINATION REQUIREMENTS: All tasks related to solid waste

BUDGET: \$5,000

TASK: Organize, coordinate and integrate special studies

PURPOSE: To organize, and coordinate special studies and to integrate them into management plans or the continuing planning process

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Organize plan development - month -2 to month 1; coordinate plan development - month 1 to month 20

INPUT: Environmental management work program; progress reports submitted by consultants; individual management plans; special studies; data base; and regional supporting services

MAJOR PRODUCTS AND EVENTS: A detailed work program and plan to be outlined for use by consultants or ABAG staff; the preparation of the report or special studies to be monitored for consistency with the approved work program; issues to be submitted to the Environmental Management Task Force or its subcommittees when policy guidance is needed; findings and recommendations of the special studies to be integrated into the management plans or the continuing planning process

METHOD: Progress of consultants and ABAG staff will be reviewed and evaluated for consistency with the work program and procedures and formats suggested by ABAG. The Environmental Management Task Force and its subcommittees will be informed of progress.

COORDINATION REQUIREMENTS: All tasks related to special studies

BUDGET: \$8,000

TASK: Service Environmental Management Task Force

PURPOSE: To provide staff support to the Environmental Management Task Force and its subcommittees

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month -5 to month 24

INPUT: EPA and SWRCB guidelines; work program; progress reports on management plans, assessment and evaluation practices, and plan integration

MAJOR PRODUCTS AND EVENTS: Approval of work program and subsequent amendments; establishment of policy for relating 201 facility plans to EMP process during two year planning period; designation of management agencies; determination of management plan integration procedures; approval of Environmental Management Plan and associated management plans; establishment of continuing planning process

METHOD: The Task Force and its subcommittees will review and approve all major policy decisions affecting the preparation of the Environmental Management Plan. Progress of work program completion will be monitored.

COORDINATION REQUIREMENTS: All tasks in the work program

BUDGET: \$40,000

TASK: Compile and adjust subregional surface runoff plans

PURPOSE: To compile and adjust at the regional level control measures proposed in each of the subregional surface runoff plans

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 20

INPUT: Subregional surface runoff management plans containing control measures

MAJOR PRODUCTS AND EVENTS: A report, which will examine possible ways of integrating subregional plans within an overall regional surface runoff plan, provide guidance to staff responsible for integrating other management plans at the 14th month point, and provide guidance for the continuing planning process for surface runoff

METHOD: Liaison with subregional agencies responsible for preparing surface runoff plans will be maintained. Previous surface water planning efforts, including ABAG's Sonoma County Study and Corps of Engineers work will be reviewed. Strategies developed by local agencies will be evaluated.

COORDINATION REQUIREMENTS: Surface runoff modeling, water quality modeling

BUDGET: \$6,000

TASK: Integrate management plans

PURPOSE: To compile the management plans, identify and resolve inconsistencies, and propose an overall regional environmental management plan framework consisting of an areawide wastewater management plan, an air quality maintenance plan, a regional solid waste management plan, and appropriate special study results

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 20

INPUT: Subregional surface runoff plans, other regional management plans, special studies, results of assessment and evaluation and institutional/financial analysis

MAJOR PRODUCTS AND EVENTS: Seven regional, consistent, management plans. See "Method" for a discussion of consistency.

METHOD: The method cannot be described specifically at this early stage. Generally, it is as follows: Each management plan will be based on existing and projected future conditions; projections will be made in terms of ranges rather than single lines. The basic projections will be those of population, land use, employment, and transportation. Other projections, of water use, for example, will be derived from these basic projections. It is possible that no management plan will call for control measures which will change the projections on which another management plan is based. In that case, integration will consist of adjusting the plans to achieve more efficient implementation or to alleviate adverse social, economic, or environmental impacts resulting from the combined effect of all plans. If, on the other hand, control measures for any management plan result in implementable changes in the projections for another plan, then both the projections and the other plan will be changed. Finally, control measures for a management plan could result in changes in projections where the implementation of the changes is questionable. Then, consideration will be given to changing the control measures in another plan to help implement the required changes in projections.

COORDINATION REQUIREMENTS: Tasks on assessment and evaluation, institutional and financial mechanisms, study management and administration, citizen participation, management plans

BUDGET: \$30,000

TASK: Describe Environmental Management Plan

PURPOSE: To document the integration of the separate management plans in the framework of the Environmental Management Plan, which will include a description of recommended local and regional institutional and financial mechanisms and the results of assessment and evaluation of the individual management plans

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 16 to month 20

INPUT: Individual management plans, results of management plan integration task, water quality objectives, institutional and financial analysis

MAJOR PRODUCTS AND EVENTS: The Environmental Management Plan, consisting of the areawide wastewater management plans, the air quality maintenance plan, and the solid waste management plan

METHOD: The Draft Environmental Management Plan or plan alternatives will be written based on earlier analysis by staff and policy decisions made by the Environmental Management Task Force.

COORDINATION REQUIREMENTS: Tasks on public participation; study management and administration, integration of management plans

BUDGET: \$14,000

TASK: Coordinate, conduct hearings and respond to hearing comments

PURPOSE: To coordinate and conduct hearings on local management plans and the regional Environmental Management Plan, to prepare responses to comments, to make modifications in plans as appropriate, and to submit plans for certification and approval

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Coordinate hearings - month 14 to month 20; conduct hearings - month 20 to month 24; respond to hearing comments - month 20 to month 24; submit plans - month 24

INPUT: Comments from hearing conducted by various agencies on the Environmental Management Plan

MAJOR PRODUCTS AND EVENTS: Revisions to the Environmental Management Plan and continuing planning process; adjustments in plan certification and approval schedule

METHOD: Responses will be classified either as related to technical information, policy or implementation. For technical information issues, reports will be expanded as necessary or considered as proposals for new programs or special studies under the continuing planning process. Policy issues will be presented as possible amendments to the environmental management plans. Implementation issues will be presented as revisions to the continuing planning process.

COORDINATION REQUIREMENTS: Development and description of the continuing planning process, public participation, and report preparation (This task will have to be closely coordinated with the overall management function to ensure that comments and responses are accurately documented.)

BUDGET: \$35,000

TASK: Budget and contract administration

PURPOSE: To perform all administrative activities related to contracts let during the course of the 208 program

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month -2 to completion

INPUT: Requests for contract services of consultant or agency

MAJOR PRODUCTS AND EVENTS: Contracts, review of contractor's financial reports and records

METHOD: See ABAG administrative policies

COORDINATION REQUIREMENTS: Study management and coordination

BUDGET: \$35,000

TASK: Overall plan management

PURPOSE: To insure the effective management and coordination of the 208 program. (Given the size and complexity of the program and ABAG's objective of integrating it with other agency programs, this is an extraordinarily important task.)

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month -2 to completion

INPUT: Environmental Management work plan; ABAG's existing management and budgeting procedures; consultant report on special or additional procedures necessary for managing the 208 program

MAJOR PRODUCTS AND EVENTS: Financial report; work plan progress report; meetings and agendas for the Environmental Management Task Force and Program Review Board

METHOD: ABAG's existing management control and information systems will be employed. These include management-by-objective work programming from the department to the individual levels; weekly meetings of the ABAG Program Management Group, composed of Associate Executive Director, Director of Planning and Programming, Director of Technical Services, and Assistant to the Executive Director, with the 208 Program Coordinator and key project staff. The purpose of these meeting will be to review progress on the work plan and the status of the budget. Work reviewed will include tasks performed by consultants or other agencies, as well as that performed by ABAG staff. In addition, a consultant contract will be let for an analysis of ABAG's management procedures to determine if supplementary practices need to be implemented for 208.

COORDINATION REQUIREMENTS: All tasks

BUDGET: \$50,000

TASK: Publish interim reports, visual aids, mail-outs, etc.

PURPOSE: To provide appropriate agencies, committees, officials, citizens, and staff with printed and graphic information about the development of the Environmental Management Plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month(-2) to month 17

INPUT: Request for graphic services, cartographic services, publication design, and coordination; typing, printing, and mail services

MAJOR PRODUCTS AND EVENTS: Graphics for brochures, newsletters, technical reports, and summary/progress reports; visual aids and hand-out materials for meetings; mail-out materials printed and mailed for meetings

METHOD: Procedures currently utilized at ABAG will be followed for publication coordination, graphic and cartographic support, and printing. Publication schedules will be produced and followed. Cartography and graphics service support will be processed through Technical Services work-orders. Printing and typing procedures will be followed as established.

COORDINATION REQUIREMENTS: Coordination among all tasks producing printing and graphic products, particularly those tasks related to overall coordination (the Environmental Management Task Force), the management plans, and public participation

BUDGET: \$15,000

TASK: Publish draft report

PURPOSE: To publish the draft final report for the integrated Environmental Management Plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 17 to month 20

INPUT: Draft material prepared by/for the Environmental Management Plan integration task

MAJOR PRODUCTS AND EVENTS: A document or set of documents referred to as the Environmental Management Plan for the San Francisco Bay Region

METHOD: The design and production of the Environmental Management Plan will flow from a systematic evaluation of purpose and possible design options to fulfill that purpose. The objective of this effort will be to create a document that clearly demonstrates the manner in which the separate management plans have been integrated into an overall Environmental Management Plan for the San Francisco Bay Region.

COORDINATION REQUIREMENTS: Plan integration function and the overall management coordinating team

BUDGET: \$21,000

TASK: Publish responses to comments

PURPOSE: To publish a final report addendum that incorporates comments on the final report and responses by those preparing the Management Plan

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 20 to month 24

INPUT: Comments primarily from hearings conducted by various agencies on the Environmental Management Plan. (These comments and responses to them will constitute the draft material input to the preparation of the report addendum.)

MAJOR PRODUCTS AND EVENTS: An addendum report to the final Environmental Management Plan

METHOD: It is not known at this point how this addendum will be compiled beyond ABAG's standard procedures for report compilation. The addendum will be designed as a companion to the Environmental Management Plan document(s).

COORDINATION REQUIREMENTS: With the overall management function to insure that comments and responses are accurately documented

BUDGET: \$8,000

TASK: Service and organize advisory committee meetings

PURPOSE: To service and organize the advisory committees meetings

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month -2 to month 19

INPUT: Progress reports on management plans, consultant work, and tasks assigned to ABAG staff, with emphasis on possible inconsistencies among task assignments completed to date

MAJOR PRODUCTS AND EVENTS: Organization of the advisory committees meetings; comments and advice solicited on the contents of the management plans and possible conflicts

METHOD: Invite private citizens and representatives from public agencies to participate

COORDINATION REQUIREMENTS: All tasks in the work program

BUDGET: \$13,000

Plan Integration and Administration-Water Quality Objectives.

These tasks will suggest new water quality objectives for consideration by the Regional Water Quality Control Board. Emphasis will be placed on areas, types of discharges and constituents for which no objectives exist or for which objectives are clearly inadequate. The major work effort will be directed toward controlling municipal wet weather overflows, bypasses, and surface runoff. The concept of "alternative levels of maintenance" for such dischargers will be examined to determine its applicability to all waters of the Bay and ocean. Water quality segment classifications will also be considered, along with a determination of waste load allocations in those segments.

TASK: Review existing water quality objectives and propose trial modifications

PURPOSE: To examine existing water quality objectives, criteria, standards, and guidelines and to propose modifications or new objectives

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 6

INPUT: Basin Plan; data management tasks; information from tasks on municipal discharges, industrial discharges, runoff, nonpoint sources, and water conservation, reuse, and supply

MAJOR PRODUCTS AND EVENTS: A list of existing Regional Board, State Board, and EPA water quality objectives for municipal and industrial discharges and runoff and nonpoint sources; a list of areas types of discharges, and constituents for which objectives are inadequate (such as wet weather discharge standards from municipal point sources); a list of proposed or modified objectives for further consideration by various affected agencies

METHOD: Existing objectives and suggested revisions will be reviewed based on comments in existing reports (Basin Plan, BASSA coordinated monitoring report, testimony at public hearings on Regional and State Board objectives); the Basin Contractor and Regional and State Board staff will be consulted. Preliminary work on point and nonpoint sources will be reviewed. Alternative levels of maintenance" will be analyzed for beneficial uses to all parts of the Bay and ocean for wet weather and surface runoff discharges. Water quality segment classifications and waste load allocations will be reviewed.

COORDINATON REQUIREMENTS: All tasks on point and nonpoint sources; water quality model tasks (Substantial communication with other water agencies will be required.)

BUDGET: \$6,000

TASK: Reassess water quality objectives based on new information

PURPOSE: To review the objectives listed in the previous task and to make modifications as necessary

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 6 to month 10

INPUT: Previous task on objectives; all tasks on point and nonpoint sources

MAJOR PRODUCTS AND EVENTS: Revised list of objectives for consideration in analysis of point source and nonpoint source work and water quality model studies

METHOD: Comments on proposed water quality objectives in the previous task will be assessed. The impact of originally proposed objectives will be evaluated. Finding will be reviewed with the Regional Board to determine compatibility with their plans and policies.

COORDINATION REQUIREMENTS: All tasks on point and nonpoint sources; task on water quality modeling. (The public and the Environmental Management Task Force will be the major reviewers of the products listed.)

BUDGET: \$2,000

TASK: Document suggested new water quality objectives

PURPOSE: To recommend specific new water quality objectives and to suggest revisions of existing objectives

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 10 to month 11

INPUT: Previous two tasks on water quality objectives

MAJOR PRODUCTS AND EVENTS: A final list of new water quality objectives for areas, constituents, or types of discharges for which no objectives or inadequate objectives exist (such a list will include wet weather discharge standards and runoff standards for protection of shellfish and other beneficial uses); possible statistical objectives based on probability rather than absolute limits; objectives for nonpoint sources such as erosion control; a schedule for adoption of new objectives

METHOD: Work accomplished in previous tasks on water quality objectives tasks will be reviewed. Input from the task on point and nonpoint sources, the public, and the Environmental Management Task Force will be received. Impacts on new objectives will be analyzed.

COORDINATION REQUIREMENTS: The public; the Environmental Management Task Force; tasks on point and nonpoint sources; institutional and financial mechanisms; the Regional Water Quality Control Board

BUDGET: \$2,000

TASK: Refine and describe final recommended water quality objectives

PURPOSE: To refine the final recommended water quality objectives based on public input and the regional assessment and evaluation

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 18

INPUT: Previous work on objectives; EMTF and public input; regional assessment and evaluation

MAJOR PRODUCTS AND EVENTS: A revised list of objectives for consideration of the Regional Water Quality Control Board; a rationale for revisions; a recommended process for formal Regional Water Quality Control Board action or changes in NPDES permit requirements or water quality objectives.

METHOD: Feedback will be obtained from the public and the Environmental Task Force on objectives. Findings of the regional assessment and evaluation of the proposed control measures (including objectives) will be analyzed. Impacts of objectives will be determined. Changes will be discussed with the Regional Water Quality Control Boards before they are finalized.

COORDINATION REQUIREMENTS: Public; the Environmental Management Task Force; tasks on regional assessment and evaluation; the Regional Water Quality Control Board

BUDGET: \$2,000

Plan Integration and Administration-Continuing Planning Process.

The following tasks describe the development of the continuing planning process at the regional level. Each of the management plans and many of the supporting regional programs include tasks late in the study program that will define what is required in the continuing planning process with respect to those management plans and programs. The tasks described in the following pages are concerned with integrating the individual descriptions into a continuing planning process for the entire region.

The functions of the continuing planning process are discussed in the section of the work program on products.

TASK: Describe current planning process

PURPOSE: To identify by agency the current responsibilities for air and water quality and solid waste planning, and to describe the planning and related programming activities that such agencies carry out or are empowered to carry out

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 2

INPUT: Section on background information and problem definition from the air quality, water quality, and solid waste work programs; minutes of EMTF and program review board meetings; study management and coordination contracts

MAJOR PRODUCTS AND EVENTS: A report, written as a popular summary, describing the current planning process for environmental management in the Bay Area; a series of working papers, organized by planning function, which analyze and detail current status of planning work, including major assumptions, major tasks, degree of technical support, level of funding, and source of mandate (i.e., legislative, federal requirements, or other); projects and schedules of ongoing planning functions, including programmed assumptions of future work.

METHOD: Existing plans and work programs will be reviewed. Statutes and regulations will be researched. Reference will also be made to major public announcements.

COORDINATION REQUIREMENTS: Tasks in air quality, water quality, and solid waste management plans, institutional and financial program tasks, and public participation

BUDGET: \$3,500

TASK: Analyze planning process and management plan continuing planning processes

PURPOSE: To integrate and analyze recommendations from individual management plans and from regional planning programs concerning what should be included in the continuing planning process

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 14 to month 16

INPUT: Continuing planning process descriptions from each of the management plans, including a description of the local continuing planning process based on the surface runoff program; a description of data management for the continuing planning process from the data base program; a description of projection methods, and of ongoing assessment procedures and institutional/financial measures from the regional supporting services program

MAJOR PRODUCT AND EVENTS: A paper describing the major characteristics of the continuing planning process; a report identifying major issues that must be resolved before a continuing planning process can be put into operation; a detailed work program for development of the continuing planning process; a draft of a popular summary of the continuing planning process for use by the Environmental Management Task Force and the program review board

METHOD: Based on descriptions of proposed regulatory programs, administrative operations and incentives will be identified that could be employed in maintaining such regulatory programs. Overlapping agency functions will be identified, and administrative and financial inefficiencies will be resolved through reallocation of functions. Integration requirements for management programs will be identified, and options and performance criteria developed.

COORDINATION REQUIREMENTS: Tasks on institutional and financial mechanisms, assessment and evaluation, study management and administration, public participation, the Environmental Management Task Force and program review board meetings

BUDGET: \$13,000

TASK: Develop and describe the continuing planning process

PURPOSE: To describe the continuing planning process for the region

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 16 to month 20

INPUT: Analysis of the planning process

MAJOR PRODUCT AND EVENTS: A popular summary description of the Continuing Planning Process; recommendations for action by the Environmental Management Task Force and possibly the ABAG Regional Planning Committee and Executive Board; proposals for new programs, interagency agreements, and new legislation (The continuing planning process described is to be included within the 208 plan for certification by the state and approved by EPA. This description will also be included as a major part of the draft Environmental Management Plan.)

METHOD: The work program for developing the continuing planning process will be carried out. Public participation responses will be evaluated, and alternatives that have broad public support will be selected. Draft resolutions will be submitted to the Environmental Management Task Force and modified if necessary.

COORDINATION REQUIREMENTS: Tasks on assessment and evaluation, institutional and financial, mechanisms on integration of management plans, public participation, Environmental Management Task Force and program review board meetings

BUDGET: \$8,500

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SPECIAL STUDIES

Each of the management plans is directed at a cause of pollution. In the sequence, "problem - cause - control," this planning process enters the sequence at the "cause" step and proceeds to investigate problems and controls related to that cause. This is the most efficient way of structuring the planning process; if the sequence were entered at the "problem" step, there would eventually be a number of relatively independent efforts directed at the same causes and controls.

However, entering the sequence at the "cause" step creates a tendency to give insufficient attention to problems. The purpose of the special studies, therefore, is to approach the sequence from the problem point of view and ensure that adequate attention is given to the more critical problems.

Seven important and sensitive issues have been identified for investigation. They are:

- o delta outflow
- o shellfish contamination
- o eutrophication
- o effects of toxicants (including heavy metals)
- o fish kills
- o dredging and disposal
- o contingency plans

Each study will rely on existing information and the opinions and advice of experts in the field. The overall objective of the studies will be to appraise the information in each of these areas, to draw conclusions, and to make recommendations for incorporation of the results into management plans.

The rationale for each study is included in its introduction.

Each study has three tasks: compile and review existing and available information; analyze existing information; and assist ABAG with integration of results into management plans. The tasks are scheduled for completion by months 4, 12 and 13.

The study on contingency plans will be conducted by ABAG staff. The other six special studies will be done by consultants, and will be monitored and managed by ABAG staff. The distribution of the funds for these other studies will be determined as the scopes of work are negotiated with consultants. The special studies are described as follows:

Delta Outflow. Water quality in the San Francisco Bay is influenced by the quantity and quality of outflow from the Sacramento-San Joaquin Delta (State Water Quality Control Board 1975). In the past, diversions of water from the Delta to other regions in the state have reduced the outflow into the Bay, changing the physical and biological characteristics of the Bay environment (Kelly, 1966). Future diversions and agricultural drainage would further reduce the amount of fresh-water flowing into the Bay, thereby increasing the strain on the estuarine ecosystem.

An estuary has been defined as ". . . a semi-enclosed coastal body of water which has a free connection to the sea; it is thus strongly affected by tidal action, and within it sea water is mixed (and usually measurably diluted) with fresh water from land drainage." (Pritchard, 1976) The uniqueness and vitality of estuaries depends on the dynamic equilibrium established by the mixing of fresh and sea water (Odum, 1971). The value and importance of estuaries as feeding, breeding, nursery, and wintering areas for fish and wildlife has been well documented (Lauff, 1967; Cronin, 1975). Human activities such as discharge of pollutants and water diversion have threatened the integrity of this productive and interesting habitat in many areas of the nation (National Commission on Water Quality, 1975).

Large-scale federal water development in the Central Valley began in 1935 with the initial phase of the Central Valley Project. This was followed shortly by the State Water Project, which aimed at redistributing water resources in the state (California Department of Water Resources, 1974). As a result of various hydrologic operations by these projects, the mean outflow of freshwater from the Delta to the Bay was reduced from 33.6 to 15.9 million acre-feet between 1900 and 1960 (California Department of Water Resources, 1960).

As the population of California and the demand for water continue to increase, changes in Delta outflow are expected. Sources of concern are:

- o reduction in the periodic, large-scale exchange of fresh and salt water

- o reduction in sediment inflow to the bay system
- o salinity balance of the estuary
- o protection of marsh lands, especially Suisun Marsh
- o effects of agricultural drainage, especially nutrient additions
- o alterations of seasonal outflow cycles, especially during critical and dry years
- o fish and wildlife resources

Studies and data have been developed over the years on each of these concerns. This special study will compile information from all previous studies and from discussions and interviews with persons knowledgeable in these areas. Recommendations will be developed and incorporated into the management plans.

References

California Department of Water Resources. 1960. The Delta and the Delta Water Project. California Department of Water Resources.

California Department of Water Resources. 1974. The California Water Plan, Outlook in 1974. Summary Report. Bulletin No. 160-74.

California State Water Resources Control Board. 1975. Water Quality Control Plan, San Francisco Bay Basin (2), Part II. Prepared by Brown and Caldwell, Water Resources Engineers, Inc., and Yoder-Trotter-Orlob & Assoc., for the SWRCB and RWQCB.

Cronin, E., ed. 1975. Estuarine Research. New York; Academic Press.

Kelley, D.W., ed. 1966. Ecological Studies of Sacramento-San Joaquin Estuary: Part I, Zooplankton, Zoobenthos, and Fishes of San Pablo and Suisun Bays, Zooplankton and Zoobenthos of the Delta. California Department of Fish and Game, Fish Bulletin No. 133.

Lauff, E.G., ed. 1967. Estuaries. American Association Advancement Science, Publication No. 83.

National Commission on Water Quality. 1975. National Commission on Water Quality. Staff Draft Report.

Odum, E.P. 1971. Fundamentals of Ecology. Philadelphia: W.B. Saunder Co.

Pritchard, D.W. 1967. "What is an Estuary? Physical Viewpoint". In: Estuaries, G.E. Lauff, ed. American Association Advancement Science, No. 83.

TASK: Compile and review all pertinent data, studies, laws, and regulations of water rights governing Delta outflow

PURPOSE: To prepare synopses of major studies on the effects of Delta outflow and agricultural drainage on the Bay and laws and regulations governing Delta outflow

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 0 to month 4

INPUT: Previous studies; interviews with experts

MAJOR PRODUCTS AND EVENTS: A technical memorandum consisting of:

- o conclusions of all important and major studies
- o a concise critique of each of these studies
- o a summary of laws and regulations on water rights governing Delta outflow
- o a bibliography of all compiled information

METHOD: Information on this special study will be researched and reviewed.

COORDINATION REQUIREMENTS: Tasks on water quality data collection and the environmental data management system

BUDGET: To be negotiated

TASK: Analyze existing and available information

PURPOSE: To summarize information on Delta outflow and agricultural drainage as they affect the Bay; to draw conclusions and make recommendations

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 4 to month 12

INPUT: Information from previous task

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o conclusions of all important and major studies
- o a summary of all information analyzed
- o conclusions
- o recommendations
- o a bibliography

METHOD: Data and studies will be analyzed and policies and proposals affecting Delta outflow and agricultural drainage will be examined. Discussions will be held with persons knowledgeable on issues related to Bay-Delta water quality. Information will be summarized; conclusions will be drawn and recommendations made.

Some of the important issues this study should consider are:

- o potential changes in Delta outflow including options for agricultural drainage
- o impact of changes on water quality (salinity, turbidity, temperature, pollutants, etc.) and quantity (seasonal runoff cycles, critical and dry years)
- o impact of changes on Suisun Marsh, striped bass, estuarine habitats, recreation
- o general effects of land use in the Delta and Central Valley on Bay waters
- o need for additional or new data

ABAG and consultant should meet with the U.S. Bureau of Reclamation, the State Water Resources Control Board, the State Department of Water Resources.

COORDINATION REQUIREMENTS: As listed above, also the interagency study on agricultural drainage

BUDGET: To be negotiated

TASK: Assist ABAG with integration into management plans

PURPOSE: To facilitate timely incorporation of findings from this study into management plans

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Conclusions and recommendations from previous task

MAJOR PRODUCTS AND EVENTS: Incorporation of conclusions and recommendations from this study into management plans

METHOD: Management plan staff will coordinate findings.

BUDGET: To be negotiated

Shellfish Contamination. Shellfish in the nation's estuaries have been contaminated. According to the National Commission on Water Quality (1975), fourteen out of sixteen estuarine sites with commercially important shellfish (oysters, clams, shrimps, crabs and lobsters) have been closed for public health reasons. The contaminants are primarily bacteria and virus, toxic substances such as heavy metals, petrochemicals, and pesticides. This study will appraise the extent and causes of shellfish contamination in San Francisco Bay.

There was a time when San Francisco Bay once had a thriving shellfish industry, the most productive of which was the oyster industry (Barrett, 1963). In 1899 the oyster meat harvest was more than 2.7 million pounds per year, but by 1936 the harvest declined to 1,450 lbs/year. Contamination causing typhoid fever, had already become common (Lunsden, et al. 1925; Geiger and Gray, 1932). In 1956, oyster harvesting was prohibited (U.S. Army Corps of Engineers, 1971).

The California Department of Fish and Game (1972) has estimated that the harvest of shucked oysters could amount to 1.7 million gallons per year if contamination were eliminated.

The clam, bay shrimp, and crab industries have also declined; and, in most instances, harvesting of these shellfish has been prohibited. All forty-two shellfish beds in the Bay suitable for shellfishing have exceeded bacterial levels considered safe for human consumption (California State Water Resources Control Board, 1971).

Although bacterial contamination has been the primary concern in determining whether shellfish are safe for human consumption, viruses and toxic substances are insidious contaminants. Standards for toxic substance are either not well established or non-existent.

In this study, records and studies on shellfish contamination in the Bay will be compiled to determine the location, frequency, and severity of this problem. Further, the type and sources of contaminants will be determined. Recommendations on mitigating measures will be incorporated into the management plans.

References

- Barrett, E.M. 1963. California Oyster Industry. California Department of Fish and Game, Fish Bulletin No. 123.
- California Department of Fish and Game. 1972. Ecological Studies in the Sacramento-San Joaquin Estuary, 1961-71.
- California State Water Resources Control Board. 1971. Clean Water for San Francisco Bay.
- Geiger, J.C., and J.P. Gray. 1932. "Typhoid Fever in San Francisco in 1931: Apparently due to Shellfish". Calif. West. Med, 37:33-36.
- Lunsden, L.L., et al. 1925. A Typhoid Fever Epidemic Caused by Oyster-Borne Infection. California Department of Public Health Report, Supplement to.
- National Commission on Water Quality. 1975. National Commission on Water Quality. Staff Draft Report.
- U.S. Army Corps of Engineers, San Francisco. 1971. Alternative for Managing Wastewater in the San Francisco Bay and Sacramento-San Joaquin Delta Area Summary Report.

TASK: Compile and review all pertinent data and studies, including health standards regulating the harvesting and consumption of shellfish

PURPOSE: To prepare synopses of major studies on shellfish habitats, shellfish harvestability, health standards restricting harvesting and consumption, and sources of contamination

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 0 to month 4

INPUT: All available information

MAJOR PRODUCTS AND EVENTS: A technical memorandum consisting of:

- o conclusions of major studies
- o a concise critique of each of these studies
- o a summary of health standards restricting the harvesting and consumption of shellfish
- o a bibliography of information compiled

METHOD: Information on this special study will be researched and reviewed.

COORDINATION REQUIREMENTS: Tasks on water quality and data collection and the environmental data management system

BUDGET: To be negotiated

TASK: Analyze existing and available information

PURPOSE: To summarize information on the status of shellfish in San Francisco Bay; to draw conclusions and make recommendations

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 4 to month 12

INPUT: Information from previous task

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o conclusions of major studies
- o a summary of information analyzed
- o conclusions
- o recommendations
- o a bibliography.

METHOD: Data and studies will be analyzed; health standards regulating shellfish harvesting and consumption will be examined, and discussions will be held with knowledgeable persons on these issues; information will be summarized, conclusions drawn, and recommendations made. ABAG and consultants will meet with the California Department of Fish and Game, the State Department of Public Health, and the Regional Water Quality Control Board.

COORDINATION REQUIREMENTS: Close coordination with other management plan task managers

BUDGET: To be negotiated

TASK: Assist ABAG with integration into management plans

PURPOSE: To facilitate timely incorporation of findings from this study into management plans

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Conclusions and recommendations from previous task

MAJOR PRODUCTS AND EVENTS: Incorporation of conclusions and recommendations from this study into management plans

METHOD: Management plan staff will coordinate findings.

BUDGET: To be negotiated

Eutrophication. Eutrophication is a natural ecological process in which the productivity increases. When human activities introduce more nutrients through soil erosion, agricultural runoff, sewage, and industrial wastes than can be assimilated, these rapidly accumulating materials become destructive to the aquatic system. This phenomenon is known as cultural eutrophication (Hasler, 1969). Cultural eutrophication has been apparent in many parts of San Francisco Bay. For example, there are large algal blooms in San Pablo Bay (California State Water Resources Control Board, 1971). Mats of green algae giving off odors of hydrogen sulfide and blackening lead-based paints have become a nuisance in several areas along the shores of the Bay, especially in the Albany tidal flats (Kaiser Engineers, 1969). There are similar problems in the South Bay below Dumbarton Bridge. In the Delta, floating algae clog waterways and reduce dissolved oxygen levels, possibly resulting in annual fish kills. Eutrophication has created ecological, economic and aesthetic problems in the Bay and there are indications that man's activities are speeding up the process.

This special study will compile studies that deal with cultural eutrophication in the Bay in order to identify contributing factors and adverse impacts. Recommendations for alleviating the problems will be incorporated into the management plans.

References

Hasler, A.D. 1969. Cultural Eutrophication is Reversible,
Bioscience 19:425-431.

California State Water Resources Control Board. 1971.
Clean Water for San Francisco Bay.

Kaiser Engineers. 1969. San Francisco Bay-Delta Water
Quality Control Plan. Final Report. Prepared for the
California State Water Resources Control Board.

TASK: Compile and review all pertinent data and studies related to eutrophication in the Bay

PURPOSE: To prepare synopses of major studies on the frequency, severity, and location of eutrophication problems, and to identify the causes

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 0 to month 4

INPUT: All available information

MAJOR PRODUCTS AND EVENTS: A technical memorandum consisting of:

- o conclusions of major studies
- o a concise critique of each of these studies
- o a bibliography of information compiled

METHOD: Information on this special study will be researched and reviewed.

COORDINATION REQUIREMENTS: Tasks on water quality and data collection and the environmental data management system

BUDGET: To be negotiated

TASK: Analyze existing and available information

PURPOSE: To summarize information on eutrophication; to draw conclusions and make recommendations

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 4 to month 12

INPUT: Information from previous task

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o conclusions of major studies
- o a summary of information analyzed
- o conclusions
- o recommendations
- o a bibliography

METHOD: Data and studies will be analyzed; issues will be discussed with experts in this field; information will be summarized; conclusions will be drawn; and recommendations will be made. Some important issues this study should consider are:

- o records and data on eutrophication episodes
- o a correlation, if data permit, of these episodes with point-source discharges and Delta outflow
- o the impact of these episodes on recreation, sport-fishing, and aesthetic qualities
- o the need for additional data

ABAG and consultants should meet with the California Department of Fish and Game, the Bay Conservation and Development Commission, and departments at the University of California.

COORDINATION REQUIREMENTS: Consultants; close coordination with other management plan staff and task managers

BUDGET: To be negotiated

TASK: Assist ABAG with integration into management plans

PURPOSE: To facilitate timely incorporation of findings from this study into management plans

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Conclusions and recommendations from previous task

MAJOR PRODUCTS AND EVENTS: Incorporation of conclusions and recommendations from this study into management plans

METHOD: Management plan staff will coordinate findings.

BUDGET: To be negotiated

Effects Of Toxicants (including heavy metals). Events such as the Minamata mercury poisoning in Japan and the discovery of carcinogens in water supply systems of many cities in the United States have called attention to problems of toxicant pollution. However, progress toward a solution of these problems has been slow because heavy metals and other trace elements are natural constituents of aquatic environments (Singer, 1973; Krenkel, 1974), and little is known about the environmental and physiological processes that regulate concentrations of these chemicals in aquatic organisms (Eisler, 1973; Hardisty, 1974). Furthermore, human responses to a given exposure of toxicant may vary, making it difficult to establish standards.

Toxicants are one of the most significant pollutants discharged into the San Francisco Bay, and mass emissions of toxic substances must be prevented (Pearson *et al.*, 1970). The sources of these contaminants are domestic and industrial effluents, agricultural and urban runoff, and, according to some sources, airborne particulates. The concentration and distribution of a number of these toxicants in the Bay have been documented (Moyer and Budinger, 1974; McCulloch, *et al.* 1971; Peterson, *et al.* 1972). The adverse impacts of toxic discharges on marine life in the Bay have been demonstrated in several studies (Felice, 1959; Daniel and Chadwick, 1971; Kaiser Engineers, 1969). However, Carter and Gustafson (1974) felt that efforts to correlate toxicity with species diversity (an indication of the ecological health of a biotic community) have not demonstrated consistent and significant relationships. In the area of health standards for toxicity in shellfish and fish, the picture remains equally unclear.

This study will examine information on the extent and impact of toxicant pollution in the Bay, and experts in the field will be consulted. Findings will be incorporated into the management plans.

References

- Carters, R.C., and J.F. Gustofson. 1974. Technical Evaluation of Final Toxicity Criteria for San Francisco Bay. Final Report. Prepared for the Bay Area Sewage Services Agency, Berkeley, California.
- Daniel, D.A., and H.K. Chadwick. 1972. A Study of Toxicity Biostimulation in San Francisco Bay-Delta Waters. Vol. VII, Effects of Wastes on Benthic Biota. California State Water Resources Control Board, Publication No. 44.
- Eisler, R. 1973. An Annotated Bibliography on Biological Effects of Metals in Aquatic Environments. National Environmental Research Center, Corvallis, Oregon. U.S. Environmental Protection Agency, EPA -R3-73-007.
- Felice, F.P. 1959. "The Effect of Wastes on the Distribution of Bottom Invertebrates in the San Francisco Bay Estuary". Wasmann Journal of Biology. 7:1-17.
- Hardisty, N.W., et al. 1974. "Ecological Implications of Heavy Metals in Fish from the Seven Estuaries." Marine Pollution Bulletin 5(12).
- Kaiser Engineers, 1969. San Francisco Bay-Delta Water Quality Control Program. Final Report.
- Krenkel, P.A., ed. 1974. Heavy Metals in the Aquatic Environment. New York: Pergamon Press.
- McCulloch, D.S., et al. 1971. Distribution of Mercury in Surface Sediments in San Francisco Bay Estuary, California. U.S. Geological Survey, Basic Data Contribution No. 14.
- Moyer, B.R., and T.F. Budinger. 1974. Cadmium Levels in the Shoreline Sediments of San Francisco Bay. Lawrence Berkeley Laboratory, LBL-2642; UC-11.
- Pearson, E.A., et al. 1970. A Comprehensive Study of San Francisco Bay. Final Report. Vol. VIII, Summary, Conclusions and Recommendations. Sanitary Engineering Research Laboratory and School of Public Health, University of California. Berkeley. SERL Report No. 67-5.
- Peterson, D.H., et al. 1972. Distribution of Lead and Copper In Surface Sediments in the San Francisco Bay Estuary, California. U.S. Geological Survey, Basic Data Contribution No. 36.
- Singer, P.C., ed. 1973. Trace Metals and Metal-Organic Interactions in Natural Waters. Michigan: Ann Arbor Science Publishers.
- U. S. Department of the Interior. 1971. Trace Elements in Water: A Bibliography. Office of Water Resources Research, WRSIC. 71-202.

TASK: Compile and review information on the impact and extent of pollution related to toxicants in the San Francisco Bay

PURPOSE: To prepare synopses of major studies on toxicants and their effect on water quality, marine life and public health

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 0 to month 4

INPUT: All available information

MAJOR PRODUCTS AND EVENTS: A technical memorandum consisting of:

- o conclusions of major studies
- o a concise critique of each of these studies
- o a bibliography of all information compiled

COORDINATION REQUIREMENTS: Tasks on water quality and data collection and the environmental data management system

BUDGET: To be negotiated

TASK: Analyze existing and available information

PURPOSE: To summarize information on pollution due to toxicants in the Bay; to draw conclusions and to make recommendations

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 4 to month 12

INPUT: Information from previous task

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o conclusions of major studies
- o a summary of information analyzed
- o conclusions
- o recommendations
- o a bibliography

METHOD: Data and studies will be analyzed, and standards for toxic substances will be examined; discussions will be held with persons knowledgeable in these areas--especially persons from the EPA "Denver Team," USGS, RWQCB, U.C. Berkeley, and the Naval Biomedical Laboratory at Alameda; information analyzed will be summarized; conclusions will be drawn, and recommendations will be made.

COORDINATION REQUIREMENTS: Close coordination with other management plan task managers

BUDGET: To be negotiated

TASK: Assist ABAG with integration into management plans

PURPOSE: To facilitate timely incorporation of findings from this study into management plans

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Conclusions and recommendations from previous task

MAJOR PRODUCTS AND EVENTS: Incorporation of conclusions and recommendations from this study into management plans

METHOD: Management plan staff will coordinate findings.

BUDGET: To be negotiated

Fish Kills. When water quality conditions exceed certain levels of tolerance, fish kills occur (Jones, 1964). In a national survey of forty-one sites, it was found that fish kills had occurred in 51 percent of the sites (National Commission on Water Quality, 1975). The causes of kills are accidental spills or continuous discharges of toxic substances; oxygen depletion due to algal blooms, benthic demands, organic materials in agricultural and urban runoff, point source discharges; pesticides in storm runoff; or rapid shifts of temperature or salinity. Frequently, fish populations are exposed to low water quality or sublethal concentrations, which will weaken their ability to withstand additional stress. Thus, fish are in some cases better monitors of water quality than standard sampling and testing programs, as these may fail to identify brief pollution episodes. The absence or death of sensitive species is a strong indication that biological conditions have deteriorated. This special study will attempt to assess the extent, frequency, and causes of fish kills in the San Francisco Bay.

Between 1965 and 1970, thirty-five fish kills were reported around San Francisco Bay (California Regional Water Quality Control Board, 1971). These kills can be classified in two categories: The summer kill and the episodic kill. In Suisun and San Pablo Bays, large numbers of fish, usually striped bass, have died each July for the past twenty-five years (Kohlhorst, 1973). Recently, summer kills of sharks and rays have occurred off Alameda (Brown and Caldwell, 1972). The precise cause has not been determined, but heavy metals and other toxicants are prime suspects (California State Water Resources Control Board, 1975). The episodic kill is caused by spills and accidental discharges of toxic substances. For instance, more than 90,000 fish died as a result of the 1965 oil spill in Martinez (U.S. Federal Water Quality Administration, 1965-70). Both kinds of kills arouse public demands for preventive measures.

This study will collect records and studies on fish kills in the Bay in order to determine the frequency, severity, and location of these episodes. Causal relationships between pollutants, the season, and the fish kills will be investigated. Findings will be incorporated into the management plans.

References

- Brown and Caldwell. 1972. Contra Costa County Water Quality Study. Final Report.
- California Regional Water Quality Control Board, San Francisco Bay Region. 1971. Interim Water Quality Control Plan for the San Francisco Bay Basin, California State Water Resources Control Board.
- California State Water Resources Control Baord. 1975. Water Quality Control Plan Report, San Francisco Bay Basin (2), Part II. Prepared by Brown and Caldwell, Water Resources Engineers, Inc., and Yoder-Trotter-Orlob & Associates for the State Water Resources Control Board and the Regional Water Quality Control Board, San Francisco Bay Region.
- Jones, J.R.E. 1964. Fish and River Pollution. London: Butterworths.
- Kolhorst, D.W. 1973. An Analysis of the Annual Striped Bass Die-off in the Sacramento-San Joaquin Estuary, 1971-2.
- National Commission on Water Quality. 1975. National Commission on Water Quality. Staff Draft Report.
- U.S. Federal Water Quality Administration. 1965-70. Fish Kills Caused By Pollution in 1965-70.

TASK: Compile and review all pertinent data and studies related to fish kills in the Bay

PURPOSE: To prepare synopses of major studies on frequency, severity and location of fish kills, and to identify causes

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 0 to month 4

INPUT: All available information

MAJOR PRODUCTS AND EVENTS: A technical memorandum consisting of:

- o conclusions of all major studies
- o a concise critique of each of these studies
- o a bibliography of information compiled

METHOD: Information on this special study will be researched and reviewed.

COORDINATION REQUIREMENTS: Tasks on water quality and data collection, and environmental data management system

BUDGET: To be negotiated

TASK: Analyze existing and available information

PURPOSE: To summarize information on fish kills; to draw conclusions and to make recommendations

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 4 to month 12

INPUT: Information from previous task

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o conclusions of major studies
- o a synthesis of information analyzed
- o conclusions
- o recommendations
- o a bibliography

METHOD: Data and studies will be analyzed and issues will be discussed with experts in the field; information will be summarized; conclusions will be drawn, and recommendations will be made. Some of the important issues this study should consider are:

- o records and data on episodes of fish kills
- o correlation, if data permit, of these episodes with point source discharges and Delta outflow
- o impact of these episodes on recreation, sport-fishing and aesthetic qualities
- o need for additional or new data

ABAG and consultants should meet and discuss with the California Department of Fish and Game, the Bay Conservation and Development Commission, and departments of the University of California.

COORDINATION REQUIREMENTS: Close coordination with other management plan staff and task managers

BUDGET: To be negotiated

TASK: Assist ABAG with integration into management plans

PURPOSE: To facilitate timely incorporation of findings from this study into appropriate management plans

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Conclusions and recommendations from previous task

MAJOR PRODUCTS AND EVENTS: Incorporation of conclusions and recommendations from this study into management plans

METHOD: Management plan staff will coordinate findings.

BUDGET: To be negotiated

Dredging and Disposal. The economy of the San Francisco Bay Area depends to a large extent on the ports, marinas, and navigation channels in the Bay (Dreisbach, 1969). These facilities must be dredged regularly because the Sacramento and San Joaquin Rivers transport eight to ten million cubic yards of sediment into the Bay each year. Only one-third of the material is carried to the ocean (Porterfield et al., 1961). However, dredging and disposal operations disturb and redistribute sediments--and this affects biological communities (Sherk, et al. 1974). Habitats are disrupted, turbidity increases, hydrogen sulfide and toxic substances are released, filter feeders suffocate, and sessile organisms are smothered.

This study will examine the effects of dredging and disposal practices on marine life in the Bay. Existing studies will be reviewed, and discussions with knowledgeable persons will be conducted. Significant findings will be incorporated into the management plans.

References

Dreisbach, R.H. 1969. Handbook of the San Francisco Region.
Palo Alto, California: Environmental Studies.

Porterfield, G., et al. 1961 Fluvial Sediments Transported
by Stream Tributary to San Francisco Bay Area. U. S.
Geological Survey.

Sherk, J.A., et al. 1974. Effects of Suspended and Deposited
Sediments on Estuarine Organisms. Phase II. University
of Maryland, National Research Institute, Reference No.
74-20.

TASK: Compile and review all studies and examine dredging and disposal practices

PURPOSE: To prepare synopses of major studies on the impacts of dredging and disposal of dredge spoils on the Bay, and to examine dredging and disposal practices

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 0 to month 4

INPUT: All available information

MAJOR PRODUCTS AND EVENTS: A technical memorandum consisting of:

- o conclusions of major studies
- o a concise critique of each of these studies
- o a summary of dredging and disposal practices
- o a bibliography of information compiled

METHOD: Information on this special study will be researched and reviewed.

COORDINATION REQUIREMENTS: Tasks on water quality and data collection, and environmental data management system

BUDGET: To be negotiated

TASK: Analyze existing and available information

PURPOSE: To summarize information on the impacts of dredging, and the disposal of dredge spoils in the Bay; to draw conclusions and make recommendations

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 4 to month 12

INPUT: Information from previous task

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o conclusions of major studies
- o a summary of information analyzed
- o conclusions
- o recommendations
- o a bibliography

METHOD: Studies will be analyzed and practices examined; discussions will be held with persons knowledgeable on issues related to the impacts of dredging and disposal; information will be summarized, conclusions drawn, and recommendations made.

Some of the important issues this study should consider are:

- o current dredging and disposal practices
- o impacts of dredging on water quality and marine biota
- o impacts of disposal of dredge spoils on benthic communities
- o alternative methods of dredging to minimize impacts
- o alternative sites for disposal to minimize impacts
- o mitigation measures for adverse impacts

COORDINATION REQUIREMENTS: Coordination with management plans

BUDGET: To be negotiated

TASK: Assist ABAG with integration into management plans

PURPOSE: To facilitate timely incorporation of findings from this study into management plans

RESPONSIBILITY: Consultants

START AND COMPLETION DATE: Month 12 to month 13

INPUT: Conclusions and recommendations from previous task

MAJOR PRODUCTS AND EVENTS: Incorporation of conclusions and recommendations from this study into management plans

METHOD: Management plan staff will coordinate findings.

BUDGET: To be negotiated

Contingency Plans. Large quantities of hazardous materials are manufactured, stored, and transported in the Bay Area (Henderson, n.d.). In 1972 more than 340 manufacturers of chemicals and petroleum products with an estimated value of \$1.8 billion had operations in the Bay Area (U.S. Department of Commerce, 1975). A high percentage of these materials are hazardous. The presence and movement of these materials increase the possibility of spills and accidental releases. In addition, accidental discharges of poorly treated or untreated wastewater can occur. Incidents could be triggered by earthquakes (Algermission, 1972), floods, explosions, mechanical failures, human error or civil disturbances (such as strikes at sewage plants). During the past three years, 83 spill incidents have occurred on Bay Areas highways (Personal Communication with Caltrans, 1976) and over 500 oil spills have been reported in the Bay waters (Personal Communication with U.S. Coast Guard, 1976). Such incidents cause property damage, threaten health, and life, and can be ecological disasters.

Contingency plans have been developed by state and federal agencies (California State Office of Emergency Services, 1975; California Department of Fish and Game, 1974; California State Office of Emergency Services and Department of Health, 1975; United States Environmental Protection Agency, 1974; Del Monte, n.d.). In addition, a number of organizations such as Clean Bay, Inc., the San Francisco Bay Chapter of the Oceanic Society, many manufacturers, water and sewage agencies, and local governments have emergency or contingency plans for responding to water pollution episodes.

This study will examine contingency plans and assess their adequacy. Information will be studied and will be held with persons having an interest in or responsibility for contingency plans. The study will identify the locations and sources of harmful materials, estimate the probability of occurrence, and determine the effectiveness of contingency plans. Recommendations for additional contingency planning will be made. Findings will be incorporated into management plans.

References

Algermission, S.T. 1972. A Study of Earthquake Losses in the San Francisco Bay Area. U.S. Department of Commerce.

California Department of Fish and Game. 1974. State of California Oil Spill Contingency Plan.

California State Office of Emergency Services. 1975. State of California Emergency Plan.

California State Office of Emergency Services and Department of Health. 1975. State of California Nuclear Power Plant Emergency Response Plan.

Del Monte, J. (undated). Federal Earthquake Response Plan, San Francisco Bay Area. Draft. Federal Disaster Assistance Administration, Region IX, San Francisco.

Henderson, D. (undated). A Regional Hazardous Materials Inventory. U.S. Environmental Protection Agency, Region IX, San Francisco.

Moll, C. (Caltrans). 1976. Personal communication.

Smith, Lt. J.J. (U.S. Coast Guard, San Francisco). 1976. Personal communication.

U.S. Department of Commerce. 1975. 1972 Census of Manufacturers - California.

U.S. Environmental Protection Agency, Region IX, San Francisco. 1974. Region IX Oil and Hazardous Substances Pollution Contingency Plan, Inland Waters.

TASK: Identify the harmful substances and contingency events that could lead to substantial water quality degradation

PURPOSE: To identify quantities and sources of harmful materials; to describe how they could enter waters of the Bay; and to estimate the impact of the event

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 0 to month 6

INPUT: Information on characteristics and movement of harmful substances, the vulnerability (relative to the Bay Area's waters) of processing, storage, and transport systems; and a general assessment of the impact on water quality

MAJOR PRODUCTS AND EVENTS: A technical memorandum that includes:

- o the reasons for including or excluding substances and a discussion of the inventory
- o a list of harmful substances
- o a description of important events and their effect on Bay Area waters
- o a discussion of other factors such as probability of occurrence

METHOD: Information on this special study will be researched and reviewed.

COORDINATION REQUIREMENTS: Consultants; tasks on water quality and data collection, and environmental data management system; ABAG Land Resources Division (earthquake and disaster studies)

BUDGET: \$8,000

TASK: Obtain pertinent contingency plans and evaluate response capability

PURPOSE: To summarize contingency plans and available resources

RESPONSIBILITY: ABAG

START AND COMPLETION DATE: Month 4 to month 9

INPUT: Contingency plans, both formal and informal; descriptions of resources (including labor, equipment and supplies) of government, industry, civic groups, and others; applicable laws and regulations

MAJOR PRODUCTS AND EVENTS: A technical memorandum that includes:

- o summaries of contingency plans
- o summaries of laws and regulations requiring contingency plans
- o a list of resources
- o a discussion of the spill events and estimated response

METHOD: Interviews with government, industry, and civic groups having an interest in or responsibility for contingency planning will be held; possible demands for action will be compared to estimated response in the light of past applicable experience.

COORDINATION REQUIREMENTS: Consultants; tasks on water quality and data collection, and environmental management systems; ABAG Land Resources Division (earthquake and disaster studies)

BUDGET: \$10,000

TASK: Analyze information and integrate the results into the management plan

PURPOSE: To analyze and evaluate the information and estimates from the two previous tasks and to comment on the consequences to water quality of continuing the present practices; to evaluate the cost and benefit of policy changes; to draw conclusions and make recommendations for incorporation into the management plan

RESPONSIBILITY: ABAG, consultants

START AND COMPLETION DATE: Month 7 to month 14

INPUT: Information from previous tasks; recommendations of government, industry, civic groups; estimates of the impact on water quality from other special studies

MAJOR PRODUCTS AND EVENTS: An interim report with preliminary conclusions and recommendations by month 10; a review of the interim report; a final report consisting of:

- o summaries of memoranda from the two previous tasks
- o conclusions and recommendations
- o references
- o recommendations for incorporation into the management plan

METHOD: Contingency plans and resources will be analyzed and evaluated in terms of consequences to water quality of possible contingency events; present practice and possible modification of present practice will be reviewed; persons knowledgeable on these topics will be interviewed, and alternative practices and their ramifications will be discussed.

Some topics of importance to this study are:

- o the consequences of major material disasters such as earthquakes and floods
- o the consequences of forced shutdown of critical systems such as wastewater treatment facilities
- o the impact of uncontrolled discharges of harmful materials
- o the implications of current trends for the future
- o the impacts, both acute and long-term, on life, economic values, and ecosystems

Meetings and discussions with knowledgeable persons from organizations such as the U.S. Coast Guard, the Regional Water Quality Control Board, Clean Bay, Inc., The Oceanic Society, the U.S. Geologic Survey, the State Office of Emergency Services, Dow Chemical Company, Chevron Chemical Company, and Shell Oil Company.

COORDINATION REQUIREMENTS: Management plan managers, the Chief of Air and Water Quality Management Division, and Environmental Management Plan Coordinator.

BUDGET: \$10,000

OTHER BUDGET LINE ITEMS

CONTINGENCY (BUDGET: \$216,000)

Because comprehensive environmental planning has not been attempted in this region, there is some uncertainty now regarding the distribution of funds. Therefore, a contingency fund of about 5 percent of the program budget has been set aside. It will be allocated to any of the program tasks during the two-year planning period at the discretion of the Environmental Management Task Force.

STATE WATER RESOURCES CONTROL BOARD (BUDGET: \$165,000)

This budget line item is for the State participation in the development of the Environmental Management Plan. A contract with the State Water Resources Control Board is being negotiated.

PREPARATION OF WORK PROGRAM AND INITIAL WORK (BUDGET: \$300,000)

This budget line item is for the preparation of work program and initial work prior to July 1, 1976.

Part 3

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BUDGET

The budget summary is shown on the following table. The allocations represent the third revision. A summary of all the program tasks is presented in the following pages. The budget for each task is included only to indicate the relative emphasis placed in each task. It will be adjusted if necessary.

<u>BUDGET SUMMARY</u>	<u>BALANCED BUDGET</u>	<u>BUDGET ALLOCATION BY RESPONSIBLE AGENCIES</u>			<u>CONSULTANT SERVICES *</u>
		<u>LOCAL AGENCIES</u>	<u>OTHER AGENCIES</u>	<u>ABAG/EMTF</u>	
<u>MANAGEMENT PLANS</u>					
Surface Runoff	\$ 708,000	\$708,000			
Air Quality Maintenance (Plan Formation)	280,000		\$ 95,000 (BAAPCD)	\$ 185,000	
Municipal Wastewater Facilities	90,000			90,000	
Other Nonpoint Sources	48,000			48,000	
Industrial Discharges	90,000			90,000	
Water Conservation, Reuse, and Supply	100,000				\$100,000
Solid Waste	66,000			66,000	
<u>DATA BASE</u>					
Data Collection Coordination and Data Management System	218,000			209,000	9,000
Data Collection	176,000	176,000			
<u>REGIONAL SUPPORTING SERVICES</u>					
Population, Land Use, Employment and Transportation Projections	218,000		80,000 (MTC)	138,000	
Water and Air Quality Analytical Procedures	285,000		24,000 (BAAPCD)	24,000	237,000
Assessment and Evaluation	337,000			320,000	17,000
Institutional/Financial Analysis	121,000			97,000	24,000
<u>PUBLIC PARTICIPATION</u>	345,000	85,000		260,000	
<u>PLAN INTEGRATION AND ADMINISTRATION</u>	360,000			360,000	
<u>SPECIAL STUDIES</u>	180,000 **			28,000	152,000
Delta Outflow					
Shellfish Contamination					
Eutrophication					
Effect of Toxicants					
Fish Kills					
Dredging and Disposal					
Contingency Plans					
<u>CONTINGENCY</u>	216,000			216,000	
<u>STATE WATER RESOURCES CONTROL BOARD CONTRACT</u>	165,000		165,000 (SWRCB)		
<u>PREPARATION OF WORK PROGRAM AND INITIAL WORK</u>	300,000	—	—	255,000	45,000
<u>TOTAL AMOUNT OF GRANT</u>	\$4,303,000	\$969,000	\$364,000	\$2,386,000	\$584,000

* Excluding consultants which counties might choose to use.

** \$152,000 will be distributed among the first six Special Studies in the process of negotiating scopes of work with consultants, and \$28,000 will be for contingency plans.

MANAGEMENT PLANS

<u>Surface Runoff</u>	<u>\$/TASK *</u>
Organize Surface Runoff Management Study	\$ 3,000
Describe Surface Runoff Systems	12,000
Describe Data Needs	4,000
Review Land Use Data Base	3,000
Determine Extent and Cause of Existing Problems	14,000
Determine Extent and Cause of Future Problems	8,000
Formulate Control Measures	15,500
Develop Institutional and Financial Analysis for Near-Term Control Measures	8,000
Assess/Evaluate Near-Term Control Measures	8,000
Prepare Report	4,000
Assist in Regional Compilation, Adjustment, Assessment	4,000
Participate in Advisory Committee Meetings	5,000
	<u>\$88,500</u>

*The amounts shown are averages for each county, excluding San Francisco which already has a surface runoff plan. Some counties will receive more than \$88,500 for the surface runoff management plan; some will receive less. Also, the scope of work for this management plan will be tailored to each county. Since the county average is \$88,500 and eight counties are receiving funds, the total budget for this management plan is \$708,000.

<u>Air Quality Maintenance</u>	<u>\$/TASK</u>
Base Year Description	\$20,000
Base Year Technical Assumptions	10,000
Prediction/Forecasting and Strategy Analysis	25,000
Prediction/Forecasting and Technical Assumptions	15,000
Control Options	5,000
Impact Assessment	20,000
Evaluation Criteria	15,000
Plan Formulation	100,000
AQMP Institutionalization	50,000
Plan Adoption	20,000
	<u>\$280,000</u>

<u>Municipal Wastewater Facilities</u>	<u>\$ / TASK</u>
Comment on 201 Facilities in EIR/EIS Process	\$ 5,500
Compile and Update Current 201 Facilities Plans	6,500
Describe Data Needs	1,500
Develop Procedures for Calculating Future Untreated Wastewater Quality and Quantity	3,000
Project Future Quality and Quantity of Wastewater	6,500
Assess Water Quality Effects of Planned Facilities on Bay and Ocean	13,000
Identify Needed Facilities	8,500
Formulate and Describe Alternatives	13,000
Assess/Evaluate	10,000
Describe Continuing Planning Process	3,500
Develop Institutional/Financial Mechanisms	2,500
Prepare Report	3,500
Assist in Regional Compilation, Adjustment, Assessment	13,000
	<u>\$90,000</u>

<u>Other Nonpoint Sources</u>	<u>\$/TASK</u>
Assess Significance of other Nonpoint Sources	\$ 9,000
Describe Data Needs	1,500
Document Significant Problems	3,000
Project Future Problems	6,000
Formulate/Describe Alternatives	9,000
Assess/Evaluate	6,000
Develop Institutional/Financial Mechanisms	4,000
Describe Continuing Planning Process	2,500
Prepare Report	3,000
Assist in Regional Compilation, Adjustment, Assessment	4,000
	<u>\$48,000</u>

<u>Industrial Discharges</u>	<u>\$/TASK</u>
Describe Data Needs	\$2,500
Describe Pretreatment Requirements for Nondiscrete Industrial Dischargers	2,500
Determine Effect of Pretreatment Requirements on Industrial Operations and Costs	10,000
Assess and Evaluate Pretreatment Requirements	8,000
Determine Effect of Pretreatment on Water Quality and 201 Facilities	9,500
Formulate and Describe Pretreatment Requirements Alternatives	7,000
Describe Existing Discrete and Nondiscrete Industrial Waste Dischargers	2,500
Identify Future Locations for Industrial Dischargers	4,000
Examine Discharge Limits for Industrial Facilities at Each Location or Area	6,000
Assess/Evaluate Discharge Limits and Locations for Discrete Industries	6,000
Characterize Hazardous Waste Production	12,000
Develop Institutional/Financial Mechanisms	4,000
Describe Continuing Planning Process	2,500
Assess/Evaluate	5,000
Prepare Report	2,500
Assist in Regional Compilation, Adjustment, Assessment	6,000
	<u>\$90,000</u>

<u>Water Conservation, Reuse, and Supply</u>	<u>\$/TASK</u>
Collect Information on Water Supply Agencies in the San Francisco Bay Region	\$12,000
Project Water Demands for the Region	7,000
Develop Water Conservation Measures	21,000
Identify Reuse Markets	3,000
Establish Wastewater Reclamation/Reuse Alternatives	12,000
Formulate Regional Water Resources Alternatives	13,000
Provide Data, Monitor and Review Regional Studies	10,000
Assess/Evaluate	10,000
Describe Continuing Planning Process	4,000
Prepare Report	3,000
Assist in Regional Compilation, Adjustment, Assessment	5,000
	<u>\$100,000</u>

Solid Waste\$/TASK

Municipal

Monitor County Solid Waste Management (SB-5) Plans and Coordinate with County and State Solid Waste Management Board (SSWMB) Staffs	\$ 7,000
Develop a Regional Overview of County SB-5 Plans	5,500
Review Findings of Bay Area Solid Waste Management Project	1,500
Identify Disposal Sites with Water Quality or Nuisance Problems	3,500
Develop Control Measures for Disposal Sites	3,000
Assess/Evaluate	4,000
Describe Continuing Planning Process	2,000
Prepare Report	1,500
	<hr/>
	\$28,000

Hazardous

Review the Findings of the Solid Waste Management Board Group I Wastes-Class I Sites Study	1,500
Determine Present and Future Production Rates and Existing Management System for Hazardous Wastes	6,000
Identify Potential Class I Site Areas	4,500
Investigate Institutional and Financial Mechanisms for Hazardous Waste Management	1,500
Describe Continuing Planning Process	2,000
Prepare Report	1,500
	<hr/>
	\$17,000

Wastewater Residuals

Assist and Coordinate with Regional Municipal Wastewater Solids Management Study	1,500
Monitor Development of the Regional Municipal Wastewater Solids Management Plan	3,000
Monitor Development of the Regional Municipal Wastewater Solids Facilities Plan	3,000
Describe the Preliminary Regional Municipal Wastewater Solids Management Plan	1,500
Assess/Evaluate	3,500
Prepare Report	1,500
	<hr/>
Assist in Regional Compilation, Adjustment, Assessment	14,000
	<hr/>
	7,000
	<hr/>
	\$66,000

<u>DATA BASE</u>	<u>\$ / TASK</u>
<u>Data Collection Coordination and Data Management System</u>	
Coordinate Development of Environmental Data Management System (EDMS) with Management Plans and Data Collection Tasks	\$ 8,000
Develop Environmental Data Management System (EDMS)	35,000
Operate Environmental Data Management System (EDMS)	44,000
Compile Existing Air Quality, Water Quality, and Solid Waste Data	44,000
Analyze Existing Water Quality Data for Runoff Problems	12,000
Develop and Organize Water Quality and Wastewater Data Collection Program for County Agencies	17,000
Coordinate County Data Collection Program	30,000
Describe Data Collection for Continuing Planning Process	12,000
Describe Environmental Data Management for the Continuing Planning Process	8,000
Prepare Report	8,000
	<u>\$218,000</u>
<u>Data Collection</u>	
Provide Local Development/Environmental Policies to ABAG	\$ 60,000
Provide Information to ABAG on Institutions and Finances	17,000
Provide Information on Utilities and Past Development to ABAG	17,000
Carry Out Water Quality Data Collection Program	60,000
Describe Data Collection for Continuous Planning Process	11,000
Prepare Report	11,000
	<u>\$176,000*</u>

*to be apportioned
among nine counties

REGIONAL SUPPORTING SERVICES

<u>Population, Land Use, Employment, and Transportation Projections</u>	<u>\$/TASK</u>
Collect and Analyze Local Development Policies	\$ 42,500
Develop and Run Land Use/Transportation Models for Base Case Projections	35,500
Analyze Local Development/Environmental Policies and Incorporate into Modeling System	26,000
Prepare Technical Report Documenting the Base Case Projections	5,500
Use Land Use/Transportation Modeling System for Assessment	85,000
Special Industry Studies to Support Projections	16,000
Describe Projection Methods for Continuing Planning Process	7,500
	<u>\$218,000</u>
<u>Water and Air Quality Analytical Procedures</u>	
Storm Runoff	
Determine Hydrologic Bases for Runoff Analysis	12,000
Specify Surface Runoff Model Inputs and Outputs	12,000
Adapt Model Geometrics for Local and Regional Use	62,000
Run Storm Runoff Model	32,000
Transfer Model Capability to ABAG	12,000
Coordinate with Management Plans and Data Collection	12,000
	<u>\$142,000</u>
Water Quality	
Specify Inputs and Outputs of the Water Quality Model	6,500
Adapt Model for Runoff Analysis	32,500
Run Water Quality Model	16,500
Transfer Model Capability to ABAG	7,000
Coordinate with Management Plans and Data Collection	9,500
	<u>72,000</u>
Coordinate Storm Runoff and Water Quality Modeling	19,000
Establish Model Capability at ABAG	5,000
	<u>\$ 24,000</u>

<u>Air Quality</u>	<u>\$/TASK</u>
Develop Input Data	\$ 8,500
Review and Select Models	2,500
Prepare Models for Testing	5,500
Calibrate Models	5,500
Strategy Analysis	5,000
Use Model(s) for Assessment	14,000
Interpret Model Results	3,000
Implications of Model Results for Air Pollution Control Policy	3,000
	<u>47,000</u>
	<u>\$285,000</u>

Assessment and Evaluation

Confirm Assessment and Evaluation Criteria	\$ 16,000
Describe Candidate Control Measures	16,000
Describe Specific Inputs to Assessment Procedures	16,000
Develop Assessment Procedures	38,000
Integrate Assessment Procedures into an Assessment System	23,000
Operate Assessment System	155,000
Compile Assessments	23,000
Develop and Describe Continuing Planning Process with Respect to Assessment	10,000
Evaluate Environmental Management Plan Alternatives	40,000
	<u>\$337,000</u>

<u>Institutional/Financial Analysis</u>	<u>\$ / TASK</u>
Describe the Present Institutional/Financial System	\$ 25,000
Describe Institutional/Financial Options for Implementing Control Measures	20,000
Evaluate Existing System Regarding Implementation of Control Measures	10,000
Provide Institutional and Financial Support to Management Plans	33,000
Develop Regional Institutional and Financial Measures Where Desirable	18,000
Describe Institutional/Financial Aspects of the Continuing Planning Process	15,000
	<u>\$121,000</u>

<u>PUBLIC PARTICIPATION</u>	<u>\$/TASK</u>
<u>Regional Program</u>	
General Regional Public Participation	\$160,000
Public Participation in Work Plan Formulation	10,000
Public Participation in Assessment Criteria	20,000
Public Participation in Base Projections and Problems	20,000
Public Participation in Management Plan Alternatives	15,000
Public Participation in Environmental Management Plan and Establishing Continuing Planning Process	15,000
Monitoring and Evaluation of Public Participation Program	20,000
<u>Local Program</u>	
Local Public Participation Program	85,000
	<u>\$345,000</u>

<u>PLAN INTEGRATION AND ADMINISTRATION</u>	<u>\$ / TASK</u>
<u>General</u>	
Organize and Coordinate Surface Runoff Management Plan Development	\$ 20,000
Organize and Coordinate Air Quality Maintenance Plan Development	5,000
Organize and Coordinate Municipal, Industrial, and Nonpoint Sources Plan Development	10,000
Organize and Coordinate Water Conservation, Reuse, and Supply Management Plan Development	8,000
Organize and Coordinate Solid Waste Management Plan Development	5,000
Organize, Coordinate, and Integrate Special Studies	8,000
Service Environmental Management Task Force	40,000
Compile and Adjust Subregional Surface Runoff Plans	6,000
Integrate Management Plans	30,000
Describe Environmental Management Plan	14,000
Coordinate Hearings, Conduct Hearings, and Respond to Hearing Comments	35,000
Budget and Contract Administration	35,000
Overall Plan Management	50,000
Publish Interim Reports, Visual Aids, Mail-Outs, etc.	15,000
Publish Draft Report	21,000
Publish Responses to Comments	8,000
Service and Organize Advisory Committee Meetings	13,000
	<u>\$323,000</u>

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Water Quality Objectives

Review Existing Water Quality Objectives and Propose Trial Modifications	\$ 6,000
Reassess Water Quality Objectives Based on New Information	2,000
Document New Water Quality Objectives	2,000
Refine and Describe Final Recommended Water Quality Objectives	2,000
	<u>\$ 12,000</u>

PLAN INTEGRATION AND ADMINISTRATION
(Continued)

\$ / TASK

Continuing Planning Process

Describe Current Planning Process	\$ 3,500
Analyze Planning Process and Management Plan Continuing Planning Process	13,000
Develop and Describe Continuing Planning Process	8,500
	<u>\$ 25,000</u>
	<u>\$360,000</u>

SPECIAL STUDIES\$/TASKDelta Outflow

Compile and Review all Pertinent Data and Studies, and Laws/Regulations
of Water Rights Governing Delta Outflow
Analyze Existing and Available Information
Assist ABAG with Integration into Management Plan(s)

Shellfish Contamination

Compile and Review all Pertinent Data and Studies, Including Health
Standards Regulating the Harvesting and Consumption of Shellfish
Analyze Existing and Available Information
Integrate with Management Plan(s)

Eutrophication

Compile and Review all Pertinent Data and Studies Related to Eutrophication
in the Bay
Analyze Existing and Available Information
Integrate with Management Plan(s)

Effects of Toxicants (including heavy metals)

Compile and Review Existing and Available Information on the Impact and
Extent of Pollution Related to Toxicants in the San Francisco Bay
Analyze Existing and Available information
Integrate with Management Plan(s)

Fish Kills

Compile and Review all Pertinent Data and Studies Related to Fish Kills
in the Bay
Analyze Existing and Available Information
Integrate with Management Plan(s)

SPECIAL STUDIES
(continued)

Dredging and Disposal

Compile and Review all Studies and Examine Dredging and
Disposal Practices
Analyze Existing and Available Information
Integrate with Management Plan(s)

\$152,000*

Contingency Plans

Identify the Harmful Substances and Contingency Events \$ 8,000
That Could Lead to Substantial Water Quality
Degradation
Obtain Pertinent Contingency Plans and Evaluate Response 10,000
Capability
Analyze Information and Integrate the Results into the
Management Plan 10,000

\$ 28,000
\$180,000

*This amount will be distributed among the first six Special Studies in the process of negotiating scopes of work with consultants.

<u>OTHER BUDGET LINE ITEMS</u>	<u>\$/TASK</u>
<u>Contingency</u>	\$216,000
<u>State Water Resources Control Board</u>	\$165,000
<u>Preparation of Work Program and Initial Work</u>	\$300,000

APPENDICES

APPENDIX I
RESOLUTIONS OF INTENT

This section consists of resolutions of intent which have been signed by local agencies indicating their willingness to participate in the environmental management program. Other counties are now in the process of preparing similar resolutions. Eventually all nine counties are expected to adopt resolutions of intent.

OFFICE OF THE COUNTY CLERK

NEIL CRAWFORD
COUNTY CLERK



HALL OF JUSTICE
600 UNION AVENUE
FAIRFIELD, CALIFORNIA 94533
PHONE (707) 422-2010

RECEIVED

April 6, 1976

APR 1 1976

ASSOCIATION OF
BAY AREA GOVERNMENTS

Association of Bay Area Governments
Hotel Claremont
Berkeley, California 94705

Gentlemen:

Enclosed please find a certified copy of the Resolution of Intent to Participate in the San Francisco Bay Area Environmental Management Program. This resolution was adopted by the Solano County Board of Supervisors at its regular meeting of March 30, 1976.

Very truly yours,

Paula M. Smith

(Mrs.) Paula M. Smith
Asst. Clerk to the
Board of Supervisors

Enclosure

1 RESOLUTION OF INTENT TO PARTICIPATE IN
2 THE SAN FRANCISCO BAY AREA ENVIRONMENTAL
3 MANAGEMENT PROGRAM

4 WHEREAS, the U. S. Environmental Protection Agency,
5 on the recommendation of the California Water Resources Control
6 Board, has designated the Association of Bay Area Governments
7 as the agency to develop an areawide wastewater management plan
8 as set forth in s.208 of the Federal Water Pollution Control Act
9 Amendments of 1972; and

10 WHEREAS, after preparation of the plan in two years,
11 all applications for grants for construction of publicly owned
12 treatment works will need to be consistent with the approved
13 plan and will be made only to management agencies designated by
14 the governor after consultation with ABAG; and

15 WHEREAS, the U. S. Environmental Protection Agency also
16 requires preparation of an Air Quality Maintenance Plan (AQMP)
17 pursuant to the Clean Air Act of 1970, and the California Air
18 Resources Board has delegated responsibilities for preparation
19 of such a plan to local governments; and

20 WHEREAS, the San Francisco Bay Area Air Quality
21 Maintenance Plan - Policy Task Force, created by the California
22 Air Resources Board to identify appropriate agencies to prepare
23 such a plan, has transferred these responsibilities to the
24 Environmental Management Task Force (EMTF), a task force composed
25 of elected officials and citizens with special expertise set up
26 under the adopted policies of the Association of Bay Area
27 Governments; and

28 WHEREAS, the California Air Resources Board intends to
29 adopt the Air Quality Maintenance Plan as part of the State
30 Implementation Plan for the achievement and maintenance of
31 Federal and State air quality standards; and

WHEREAS, the U. S. Environmental Protection Agency has awarded \$4.3 million to the Association of Bay Area Governments for the preparation of an environmental management plan that coordinates planning efforts for water quality, air quality and solid waste on a regional basis; and

WHEREAS, the Association of Bay Area Governments expects to expend a significant portion of this amount to support direct participation by local public agencies with responsibilities related to the purposes of the grant in the formulation and implementation of the plan; and

WHEREAS, the local governmental agency participation will include:

- a. Formulation of county-wide surface runoff management plans and development of the institutional and financial mechanisms for implementing and maintaining these programs;
 - b. Assistance in compiling an inventory of development policies in Solano County;
 - c. Conduct of a program that provides for participation by local elected officials and citizens throughout the two year planning period in plan preparation and assessment;
 - d. Participation in the development of the Environmental Management Plan for the region, which will be composed of the areawide wastewater management plan, the air quality maintenance plan, and a solid waste plan focusing on region-wide issues; and
 - e. Preparation to implement those aspects of the environmental plan that are within the powers of the local governmental agency; and

1 WHEREAS, the Association of Bay Area Governments has
2 identified problems in Solano County and proposed a budget of
3 an undertermined amount for the solution of these problems
4 through joint participation by the responsible public agencies
5 in the Environmental Management Program;

6 NOW, BE IT THEREFORE RESOLVED, that Solano County
7 will join with other public agencies in Solano County, to
8 participate with the Association of Bay Area Governments and
9 local agencies in the other Bay Area counties in the Environ-
10 mental Management Program and is willing to act as the lead
11 agency in Solano County; and

12 THAT such participation shall include agreement among
13 the involved agencies upon a lead agency, the necessary inter-
14 governmental arrangements for joint participation, and the
15 assignment of responsibilities for:

- 16 a) Preparation of a surface water management plan
17 for urban and agricultural runoff within Solano
18 County;
- 19 b) Assistance in compiling an inventory of development
20 policies in Solano County;
- 21 c) Participation in the Association of Bay Area
22 Governments' regional program of Environmental
23 Management Plan formulation and assessment; and
- 24 d) Ensuring ongoing local elected official and
25 citizen involvement in the subregional and
26 regional environmental management programs.

27 -----
28 I, NEIL CRAWFORD, County Clerk of Solano County, State
29 of California, and ex officio Clerk of the Board of Supervisors
30 of said County, do hereby certify that the foregoing Resolution
31 was regularly introduced, passed and adopted by said Board at a
32 regular meeting thereof held on March 30, 1976.

1 On the motion of SUPERVISOR Hannigan and
2 seconded by SUPERVISOR Brazelton, this Resolution was
3 adopted by the following vote:

4 AYES: SUPERVISOR Brazelton, Hannigan, Hillyard
5 Scofield and Brann

6 NOES: SUPERVISOR none

7 ABSENT: SUPERVISOR none

8
9 WITNESS my hand and Seal of said Board this 30th day
10 of March, 1976.

11 NEIL CRAWFORD,
12 County Clerk

13 By

Laundra Anthon
14 Deputy Clerk

APPENDIX II
AGREEMENTS WITH OTHER AGENCIES

This section contains memorandums of understanding and work agreements with public agencies that are integral participants in the environmental management program.



BAY AREA AIR POLLUTION CONTROL DISTRICT

cc: Mr. Thomas H. Bates
Executive Director

cc: Mr. Robert W. Hause
Chairman, Board of Directors

cc: Mr. Peter R. Chapman
Executive Director
Metropolitan Transportation

cc: Mr. Paul R. Goff
San Francisco

cc: Mr. Alfred J. Nelder
Alfred J. Nelder

cc: Mr. Peter Tamaras
Peter Tamaras

cc: Mr. Jean Easter
Jean Easter

cc: Mr. Warren Steinmann
Warren Steinmann

cc: Mr. Daniel A. McLachland
Daniel A. McLachland
Mr. William R. McEvily
William R. McEvily

cc: Mr. D. J. Callaghan
D. J. Callaghan
Executive Director
Executive Director

cc: Mr. D. J. Callaghan
D. J. Callaghan
Air Pollution Control Officer

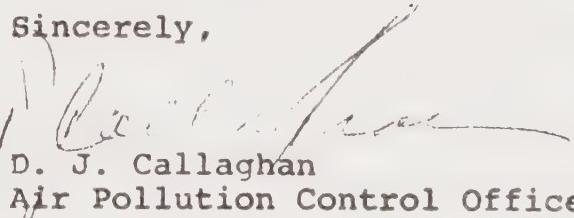
March 19, 1976

Mr. Revan A. F. Tranter
Executive Director
Association of Bay Area
Governments
Hotel Claremont
Berkeley, California 94705

Dear Revan:

Enclosed please find a signed copy of the Agreement
Establishing A Joint Technical Staff.

Sincerely,


D. J. Callaghan
Air Pollution Control Officer

DJC:tmc
Enclosure

RECEIVED

MAR 22 1976

ASSOCIATION OF
BAY AREA GOVERNMENTS

ASSOCIATION OF BAY AREA GOVERNMENTS
BAY AREA AIR POLLUTION CONTROL DISTRICT
AGREEMENT ESTABLISHING A
JOINT TECHNICAL STAFF

THIS AGREEMENT is entered into this 17th day of March, 1976 by and between the ASSOCIATION OF BAY AREA GOVERNMENTS, hereinafter "Association," and the BAY AREA AIR POLLUTION CONTROL DISTRICT, hereinafter "District."

STATEMENT OF PURPOSE

The Association as a designated "208" agency under the Federal Water Pollution Control Act of 1972 has received a grant from the United States Environmental Protection Agency (EPA) to prepare an Areawide Wastewater Management Plan involving delineated areas of the nine Bay Area counties. Pursuant to the Clean Air Act of 1970, California Air Resources Board (CARB) established a San Francisco Bay Area Air Quality Maintenance Plan-Policy Task Force (AQMP-PTF) to direct the preparation of an Air Quality Maintenance Plan.

The EPA, the Association, and the District recognize the interrelationships between the air and water quality problems of the San Francisco Bay Area. This requires the development of a comprehensive planning process to deal with these problems. The Association and the District have previously recognized the

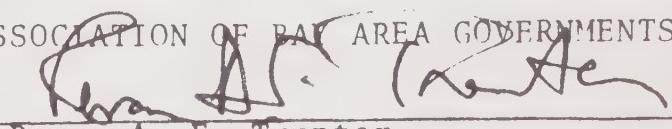
need for and desirability of regional coordination of data, projections, policies and plans in order to provide a common base for air quality planning within the framework of the Regional Comprehensive Plan of the Association and in response to federal and State mandated air quality standards. Further, the Association and the District have, through an existing Memorandum of Understanding, authorized their respective administrative officers "to enter into such agreements as may be needed to effect joint programs, services or facilities subject to such specific authorization as may be required by the governing policies of each agency."

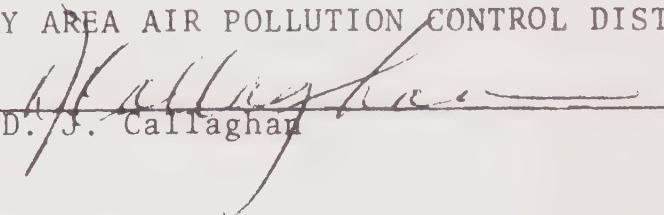
The Association, under the provisions of its 208 grant, has established an Environmental Management Task Force comprised of elected officials and citizens of the San Francisco Bay Area to direct the preparation of the Environmental Management Element to the Regional Plan. The responsibilities of the Air Quality Maintenance Plan-Policy Task Force have by resolution been transferred to this Environmental Management Task Force. At the time of this transfer the need was recognized for a Joint Technical Staff involving personnel from the Association and the District and subsequently possibly from other agencies "to continue and build upon the work" of the Phase I Air Quality Maintenance Plan-Policy Task Force. This agreement establishes that Joint Technical Staff.

TERMS AND CONDITIONS

1. The Association and the District establish a Joint Technical Staff of appropriate personnel to direct development and preparation of the Bay Area's Air Quality Maintenance Plan building upon work already accomplished through the Phase I efforts of the Air Quality Maintenance Plan-Policy Task Force.
2. The Joint Technical Staff shall be led by a Project Manager to be designated by the Association in consultation and with the approval of the District.
3. The Joint Technical Staff shall share responsibilities for the technical analyses and products of the air quality planning program.
4. The Joint Technical Staff shall coordinate and supervise the work of all air quality consultants engaged by the Association subject to the direction of the Environmental Management Task Force. The Association shall be the administrative agent for the consultant contracts.
5. The Joint Technical Staff shall be funded either through the Association's 208 grant, or direct funding provided by the District from EPA and/or CARB, or through a combination of all three funding sources.
6. All technical reports prepared by the Technical Staff shall be subject to review by the Association and the

District prior to final report publication. In the event personnel of other agencies should subsequently participate in this Joint Technical Staff, those agencies shall also have the right to review prior to final publication.

ASSOCIATION OF BAY AREA GOVERNMENTS
By 
Revan A. F. Tranter
Executive Director

BAY AREA AIR POLLUTION CONTROL DISTRICT
By 
D. J. Callaghan

GENERAL ENVIRONMENTAL EFFECTS OF SOLID WASTES

Water Quality Effects

Impairment of surface and groundwater quality due to inadequate management practices for the storage, collection, transportation, and disposal of municipal, industrial, agricultural, and other special wastes, such as hazardous wastes, sludges, and street sweepings.

Air Quality Effects

Impairment of air quality due to uncontrolled burning of solid waste.

Impairment of air quality due to emissions from solid waste collection and transportation vehicles.

Public Health and Safety Effects

Production of flies, rodents, and other vectors of disease as a result of poorly managed solid waste.

Transmission of pathogens and parasites through sewage sludge and other hazardous waste.

Occurrence of occupational or safety hazards such as injuries from fires and explosions, traffic hazards, and contact with hazardous wastes.

Aesthetic and Nuisance Effects

Annoyance caused by flies, gnats, and other flying pests.

Noise, odors, smoke, and unsightliness associated with the handling of wastes.

Ecological Effects

Disruption of the estuary by filling the shallow reaches, mudflats, and marshes of the Bay.

Disruption of the established botanical and zoological communities by the filling of canyons.

Resource Depletion Effects

Acceleration of resource depletion due to increase in annual waste production and slow progress in resource recovery from solid waste.

SPECIFIC REGIONAL PROBLEMS

An estimated 10 million tons of municipal, industrial, and agricultural wastes needed to be disposed of in the nine bay area counties in 1975.

The location of past and present solid waste disposal sites in close proximity to the Bay-Delta ground and surface waters has resulted in impairment of water quality.

Since most of the existing disposal sites will be completely filled in less than ten years, new disposal sites or disposal methods have to be developed in the near future.

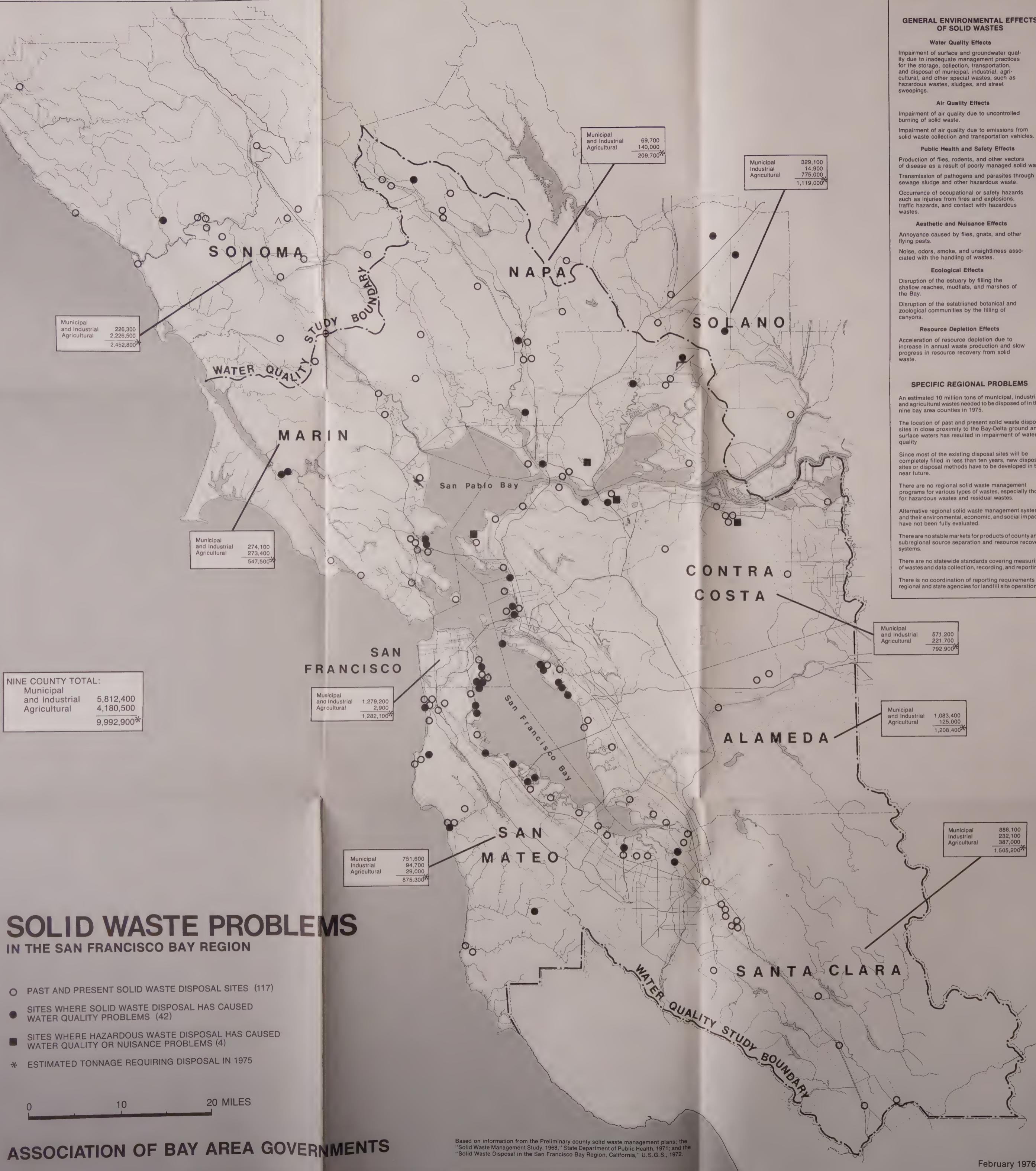
There are no regional solid waste management programs for various types of wastes, especially those for hazardous wastes and residual wastes.

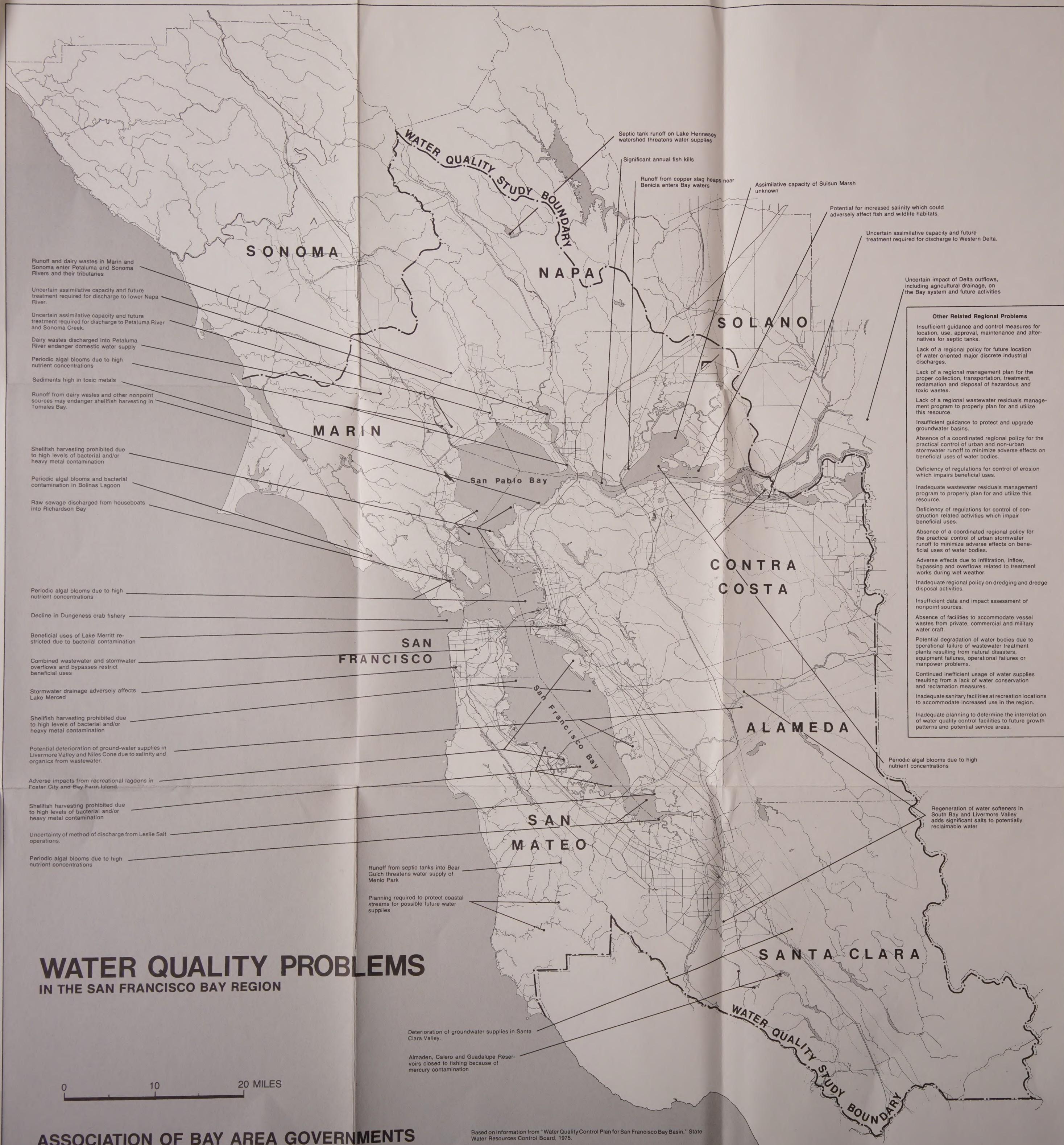
Alternative regional solid waste management systems and their environmental, economic, and social impacts have not been fully evaluated.

There are no stable markets for products of county and subregional source separation and resource recovery systems.

There are no statewide standards covering measuring of wastes and data collection, recording, and reporting.

There is no coordination of reporting requirements of regional and state agencies for landfill site operations.





AIR QUALITY PROBLEMS

IN THE SAN FRANCISCO BAY REGION

POLLUTANT	EXTENT OF PROBLEM*		
	NO. OF DAYS OVER STANDARD		
	1-24	25-49	>50
OXIDANT	○	○	●
CARBON MONOXIDE	△	△	▲
PARTICULATES	□	□	■
SULPHUR DIOXIDE	▽	▽	▽

* Based on observations at monitoring stations.

Sources responsible for air quality problems may not be located in the same areas in which the problems are observed, since winds can transport pollutants from one part of the region to another. Lack of a pollutant symbol at various sites does not necessarily imply no air quality problem exists for that pollutant.

AIR POLLUTION IN THE BAY AREA BY STATION AND CONTAMINANT: 1974

For oxidant and for nitrogen dioxide, "max" is the highest hourly average value expressed in part per hundred million. For carbon monoxide, "max" is highest 8-hour average value in parts per million. [The one-hour standard for CO was never exceeded during the year.]

For sulfur dioxide, "max" is highest 24-hour average value expressed in parts per million. For total suspended particulates (TSP) "mean" is annual geometric mean in micrograms per cubic meter.

Stations	Ox Max.	*1	**2	CO Max.	*3	NO ₂ Max.	*	SO ₂ Max.	+	TSP Mean	***
San Francisco	14	4	4	9.9	2	16	0	.070	0	57	6.0
San Rafael	12	2	8	8.1	0	17	0	.015	0	39	2.5
Richmond	11	1	1	7.0	0	15	0	.041	0	45	1.7
Pittsburg	15	21	30	7.0	0	11	0	.028	0	50	5.0
Concord	16	20	35	9.2	1	20	0	.021	0	46	5.0
Walnut Creek	15	18	31	—	—	—	—	—	—	—	—
Oakland	13	3	6	9.5	1	25	1	—	—	—	—
San Rafael	18	20	31	—	—	—	—	—	—	—	—
Hayward	23	35	48	—	—	—	—	—	—	57	9.2
Fremont	22	41	61	7.6	0	19	0	.012	0	74	28.2
Livermore	28	83	93	6.4	0	18	0	.006	0	59	12.0
San Jose	28	69	87	16.9	14	30	4	.016	0	—	—
Alum Rock (NS)	24	77	96	—	—	—	—	—	—	—	—
Gilroy (NS)	17	44	63	5.9	0	13	0	.004	0	41	2.5
Los Gatos	25	53	69	—	—	—	—	—	—	—	—
Sunnyvale	18	31	46	9.1	2	31	3	.008	0	50	5.8
Mountain View	15	15	18	—	—	—	—	—	—	39	0.8
Redwood City	18	11	20	8.8	0	33	2	.017	0	—	—
Burlingame	16	10	18	9.8	2	—	—	.038	0	43	2.6
Petaluma	14	10	13	—	—	—	—	—	—	59	6.7
Santa Rosa	10	4	6	8.0	0	15	0	.006	0	61	14.3
Napa	13	22	32	10.1	1	14	0	.019	0	—	—
Vallejo	16	22	28	11.9	14	14	0	.015	0	—	—
Fairfield	15	26	38	—	—	—	—	—	—	—	—

(NS) Indicates new station, activated during 1974.
* Number of days ambient air quality standard was exceeded. *1 State oxidant standard $\geq 10 \text{ ppm}$. **2 Federal oxidant standard $\geq 8 \text{ ppm}$.
+ Percent of observed days when State air quality standard was exceeded.
*** Percent of observed days when State air quality standard ($100 \mu\text{g/m}^3$ for 24 hours) was exceeded.

0 10 20 MILES

WORK PROGRAM OVERVIEW FOR THE PREPARATION OF THE ENVIRONMENTAL MANAGEMENT PLAN FOR THE SAN FRANCISCO BAY REGION ASSOCIATION OF BAY AREA GOVERNMENTS

